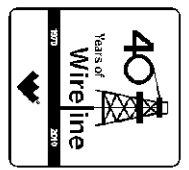




**Weatherford**<sup>®</sup>

**CML IMPULSE SHUTTLE  
COMPACT PHOTO DENSITY  
COMPENSATED DUAL NEUTRON LOG**

COMPANY SANDRIDGE EXPLORATION & PRODUCTIO  
WELL ELLIS 1-19H  
FIELD WILDCAT  
PROVINCE/COUNTY COMANCHE  
COUNTRY/STATE U.S.A. \ KANSAS  
LOCATION 200' FNL & 660' FWL



SEC TWP RGE Other Services  
19 31S 19W MAI  
API Number 15-033-21605  
Permit Number

Permanent Datum G.L., Elevation 2055 feet  
Log Measured From K.B. @ 20 FT above Permanent Datum  
Drilling Measured From K.B.

Elevations: feet  
KB 2075.00  
DF 2073.00  
GL 2055.00

Date	15-NOV-2011
Run Number	ONE
Depth Driller	9574.00 feet
Depth Logger	9528.00 feet
First Reading	9497.00 feet
Last Reading	5200.00 feet
Casing Driller	5595.00 feet
Casing Logger	5589.00 feet
Bit Size	6.125 inches
Hole Fluid Type	WATER
Density / Viscosity	8.60 lb/USg 31.00 CP
PH / Fluid Loss	8.00
Sample Source	FLOWLINE
Rm @ Measured Temp	1.80 @ 68.0 ohm-m
Rmf @ Measured Temp	1.44 @ 68.0 ohm-m
Rmc @ Measured Temp	2.16 @ 68.0 ohm-m
Source Rmf / Rmc	CALC CALC
Rm @ BHT	0.70 @125.0 ohm-m
Time Since Circulation	6 HOURS
Max Recorded Temp	125.00 deg F
Equipment Name	COMPACT
Equipment / Base	18077 OKC
Recorded By	J. WELLBROCK
Witnessed By	KATHY GENTRY
	3534296
	DC 11450

BOREHOLE RECORD			Last Edited: 15-NOV-2011 17:05	
Bit Size inches	Depth From feet	Depth To feet		
6.125	5595.00	9574.00		
CASING RECORD				
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	7.000	0.00	5595.00	17.00

**REMARKS**

WLS LOGGING SOFTWARE VERSION 11.02.3186 WAS USED

ALL LOGS WERE SET TO DEPTH WITH MWD GAMMA RAY

DRILL PIPE DEPTH DURING DEPLOYMENT: 9447  
LOGGING TOOL DEPTH AFTER DEPLOYMENT: 9428

4.5 INCH PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUMES

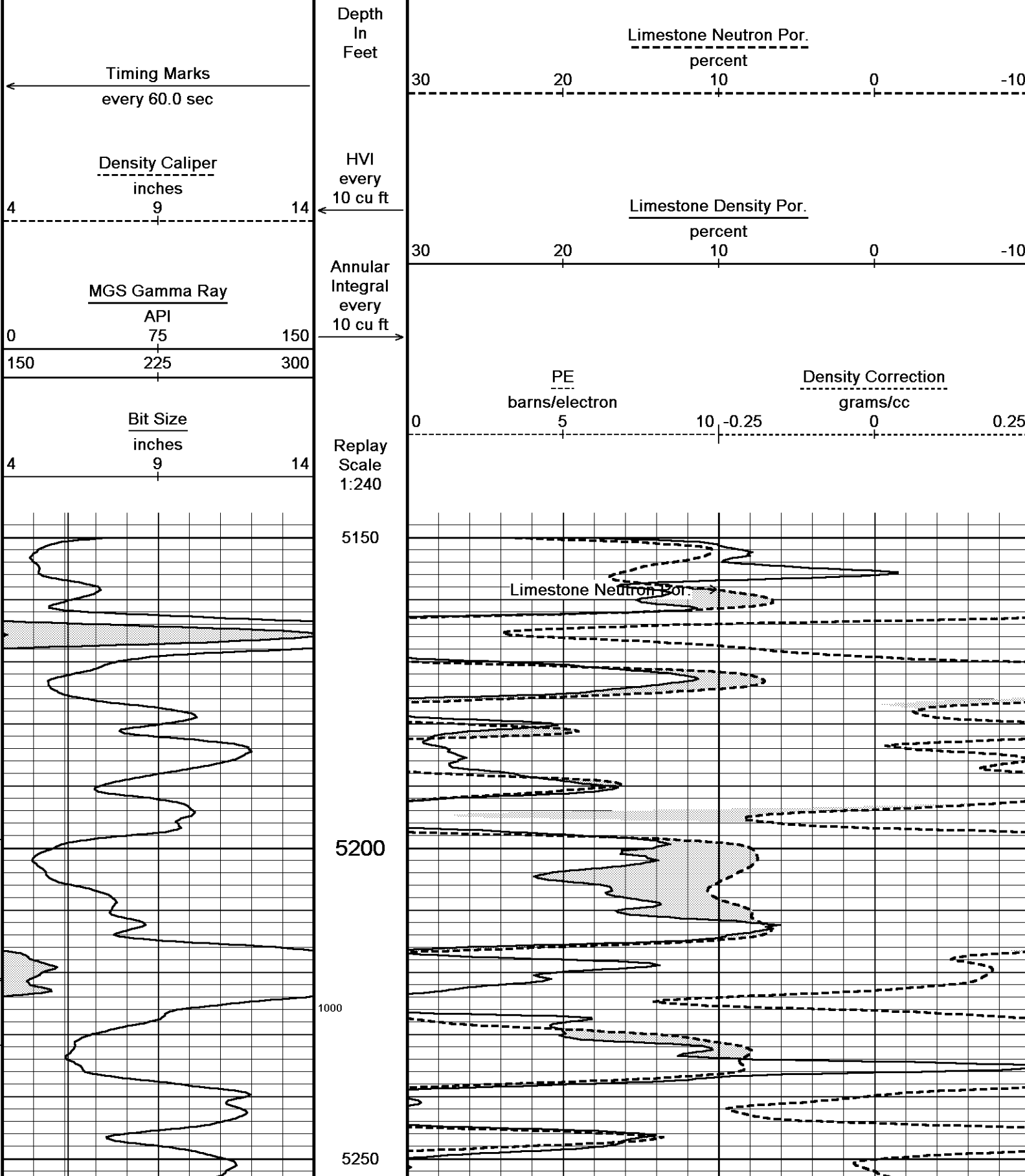
OPERATORS: J. TURNER / R. BRADSHAW  
S.O: 3534296  
RIG: LARIAT 38

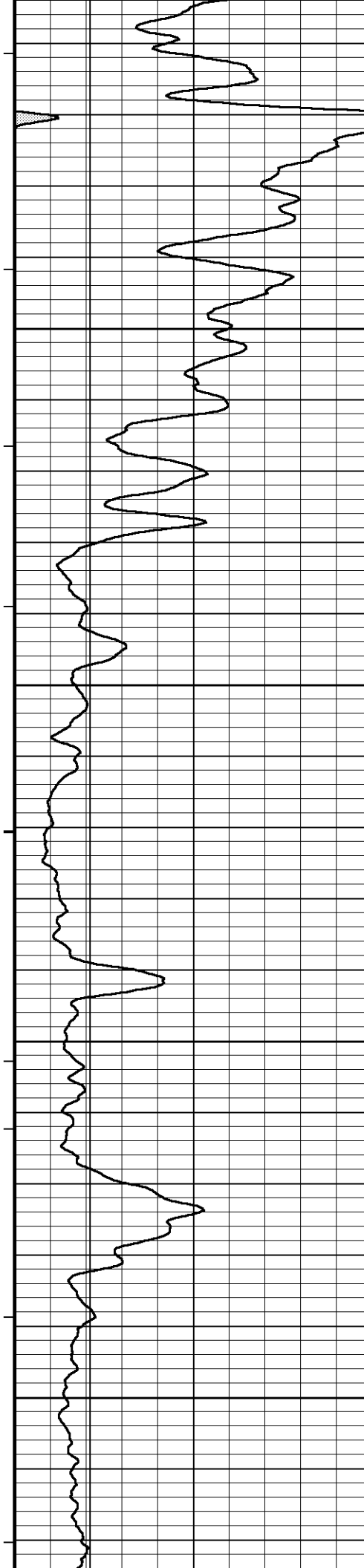
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for

any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

**5 INCH MAIN LOG**

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 16-NOV-2011 17:42  
 Filename: C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta Recorded on 16-NOV-2011 15:37  
 System Versions: Processed with 11.02.3186 Plotted with 11.02.3186



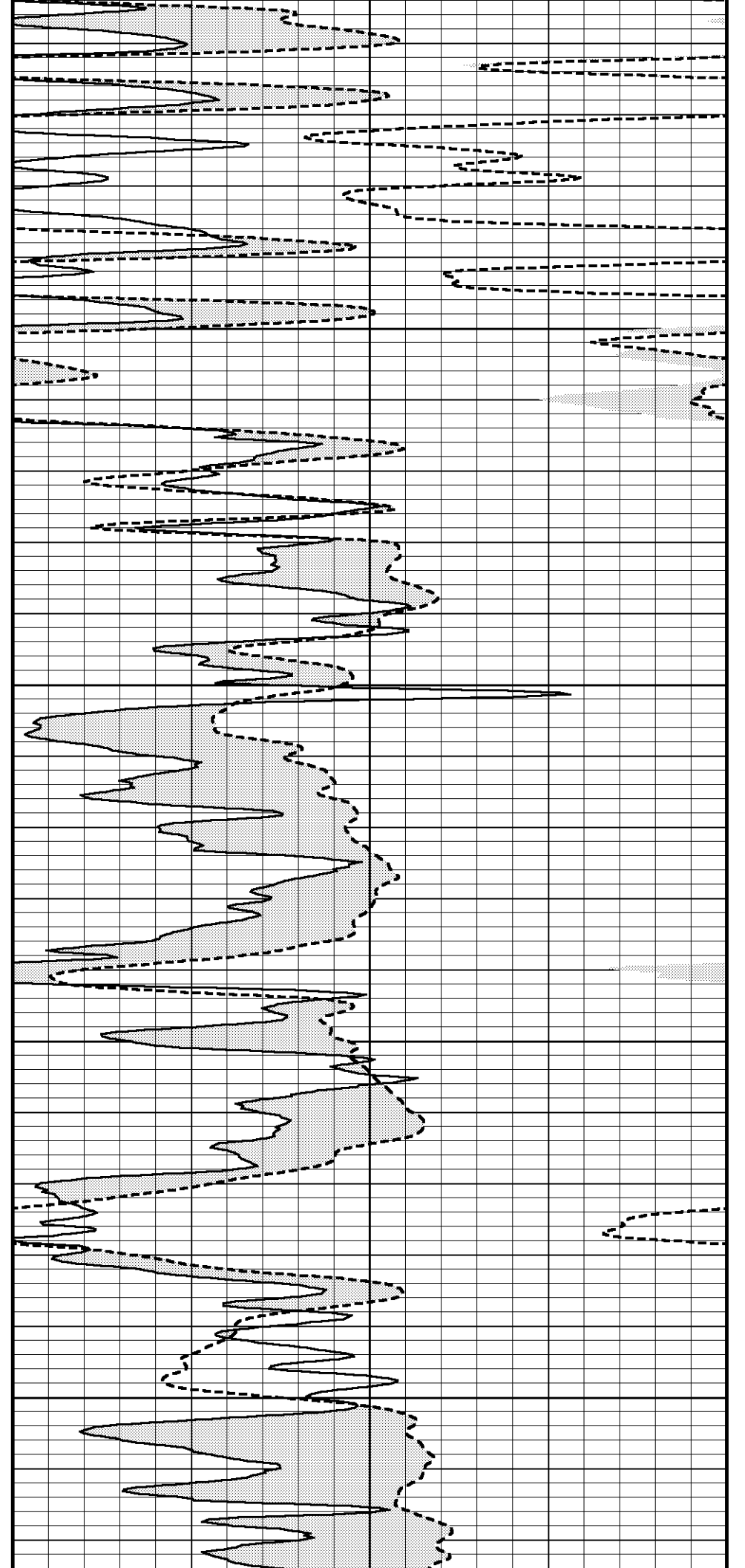


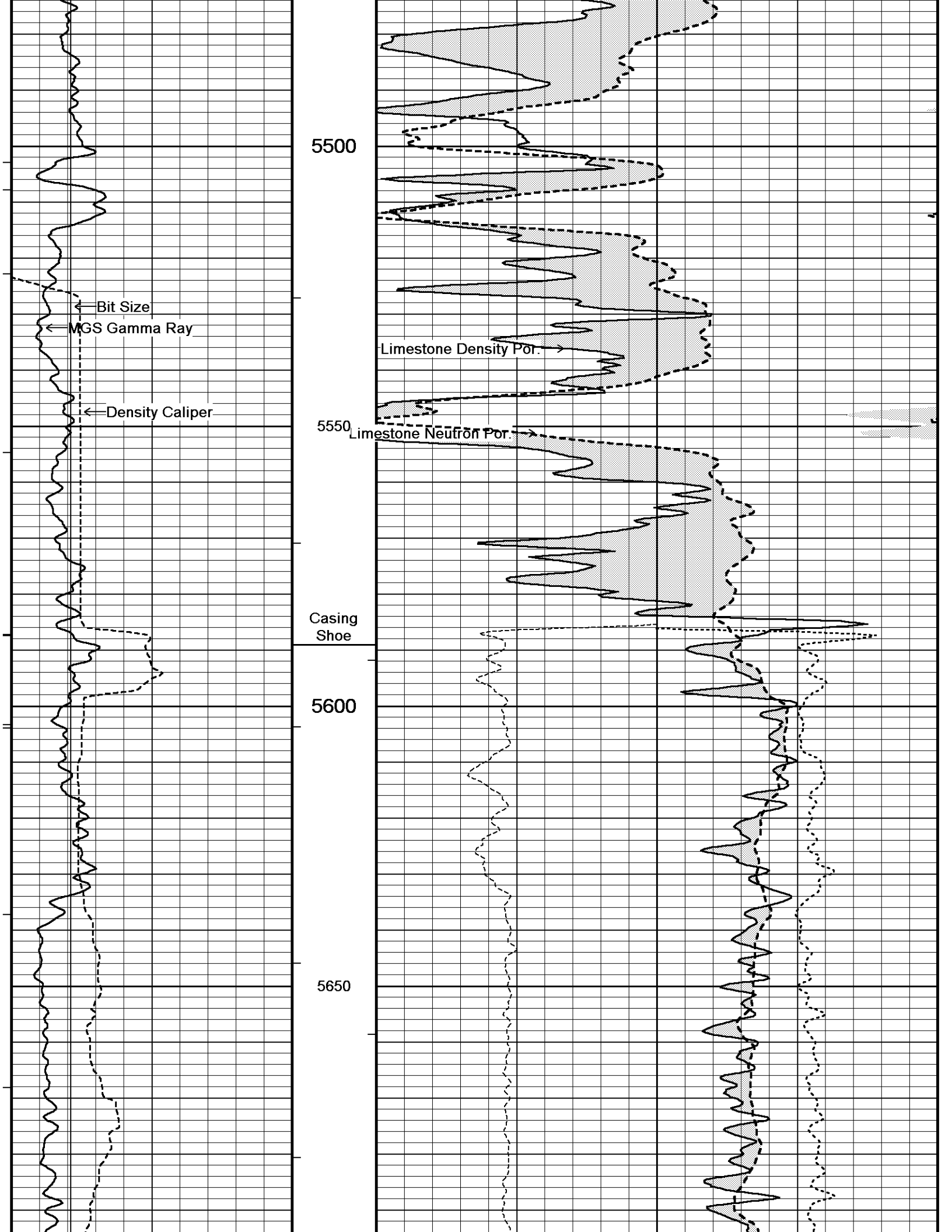
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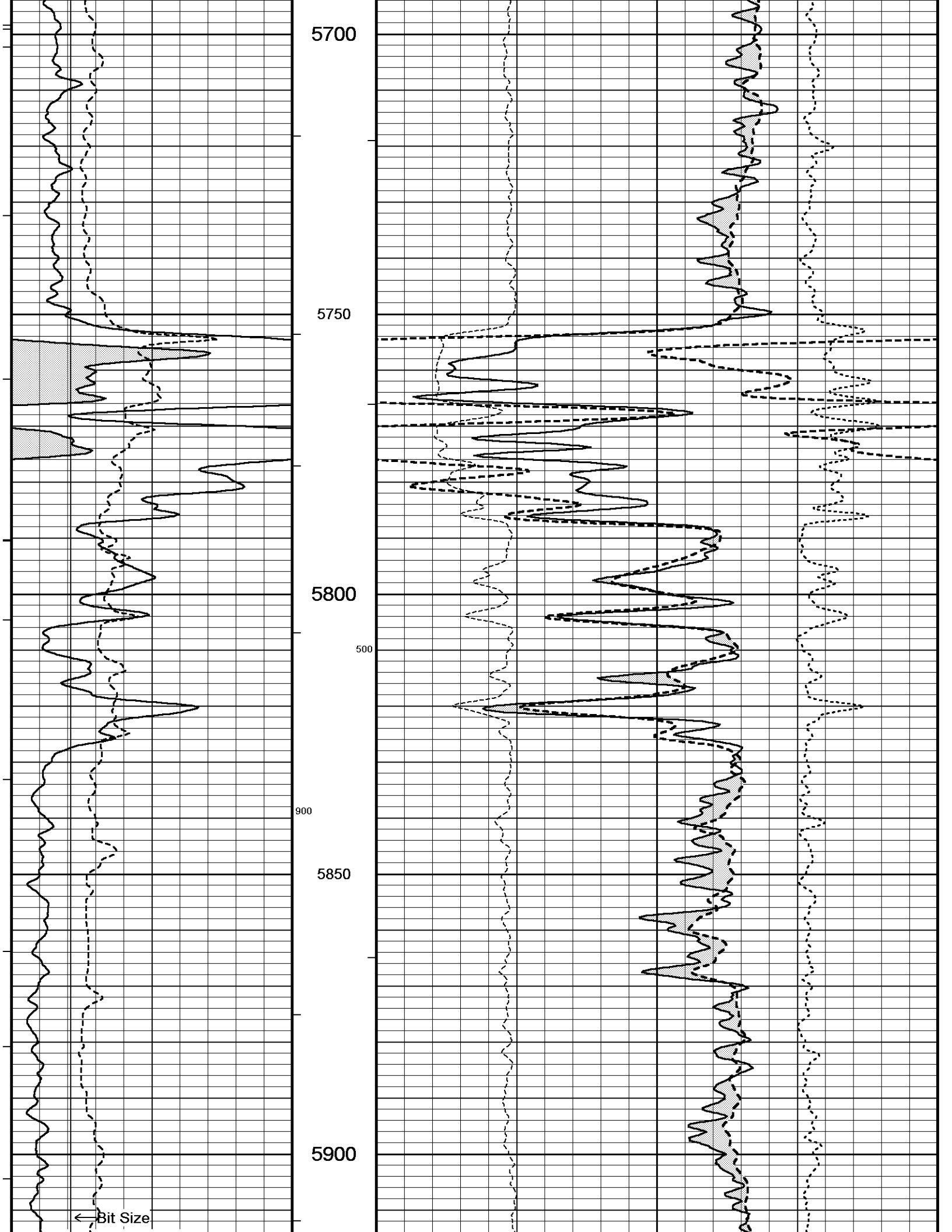
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5400

5450







5700

5750

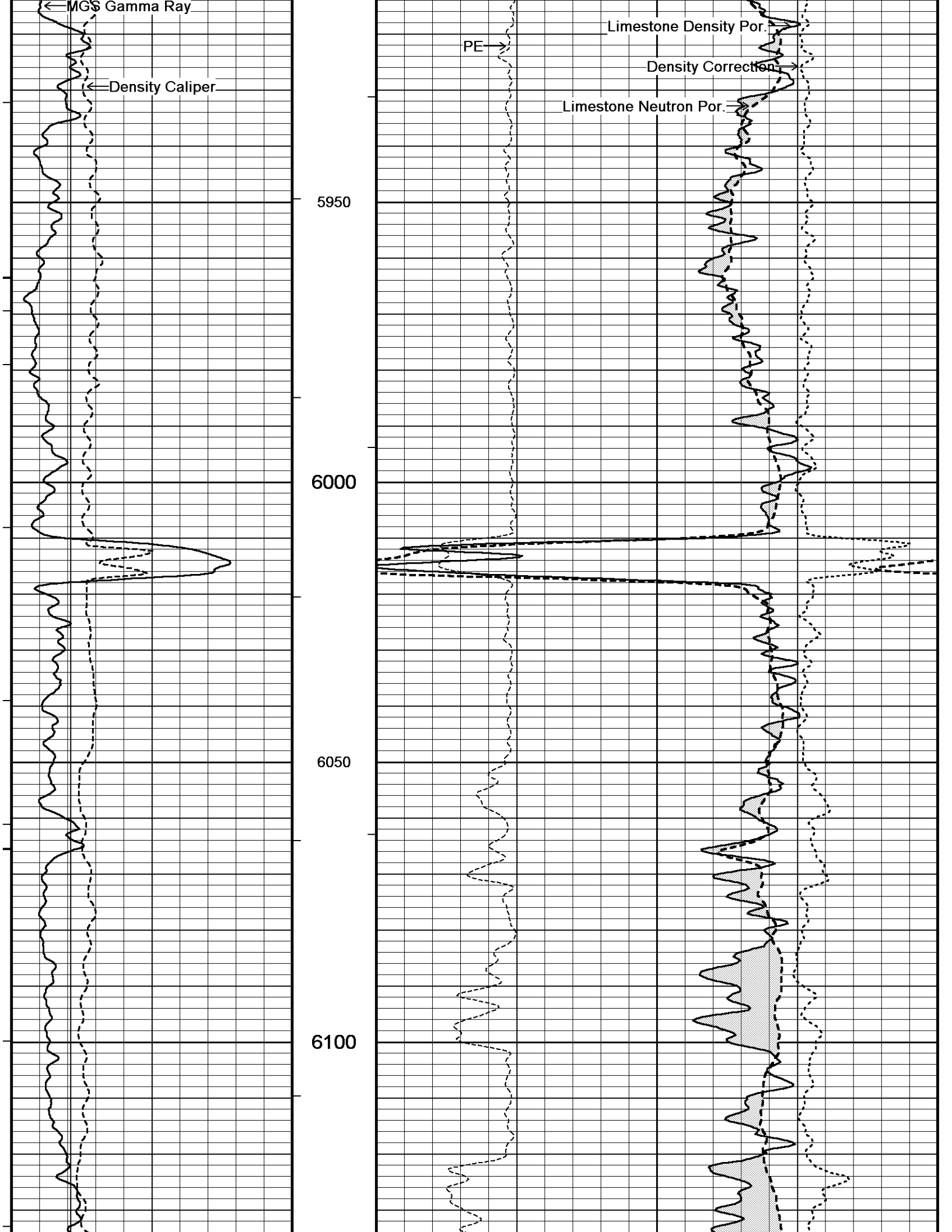
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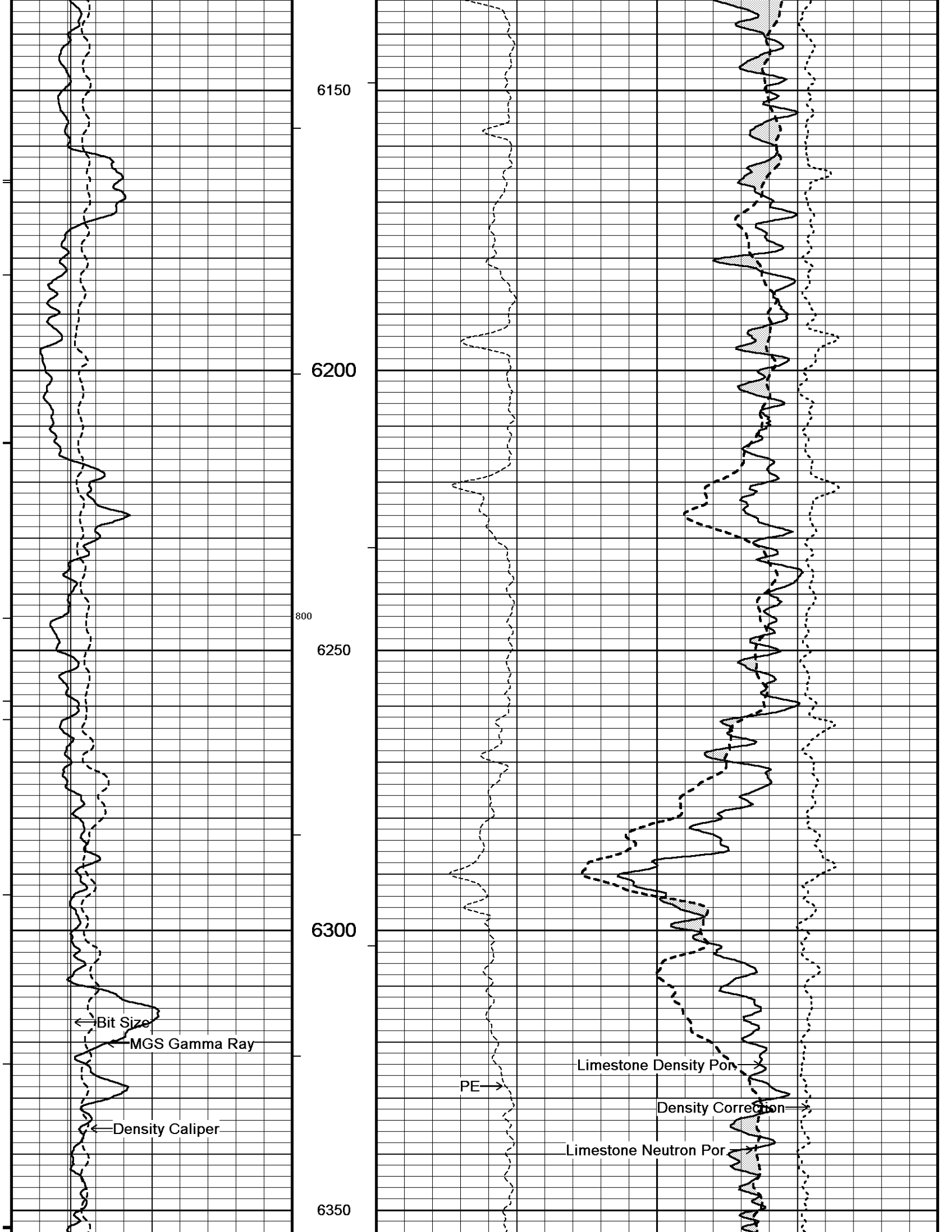
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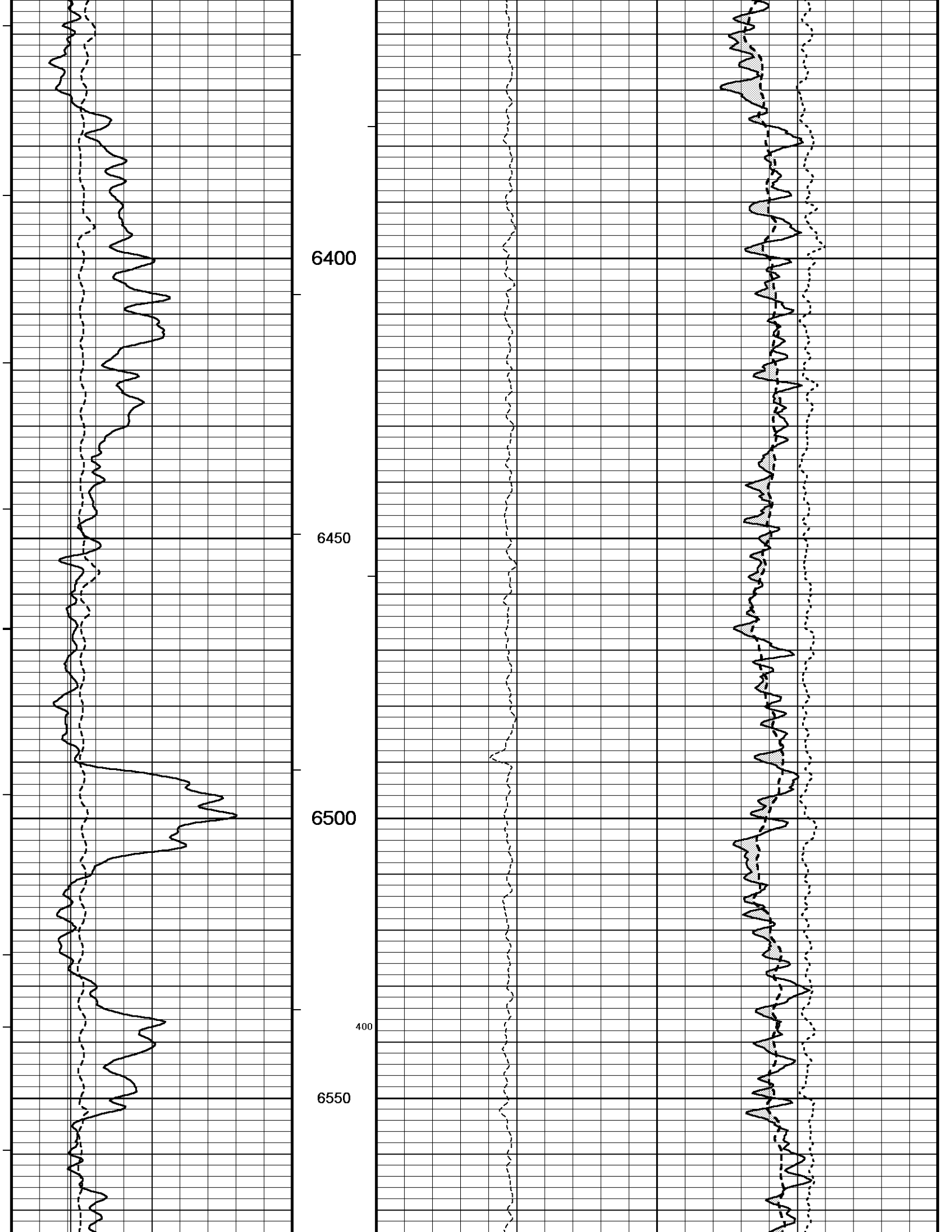
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5900

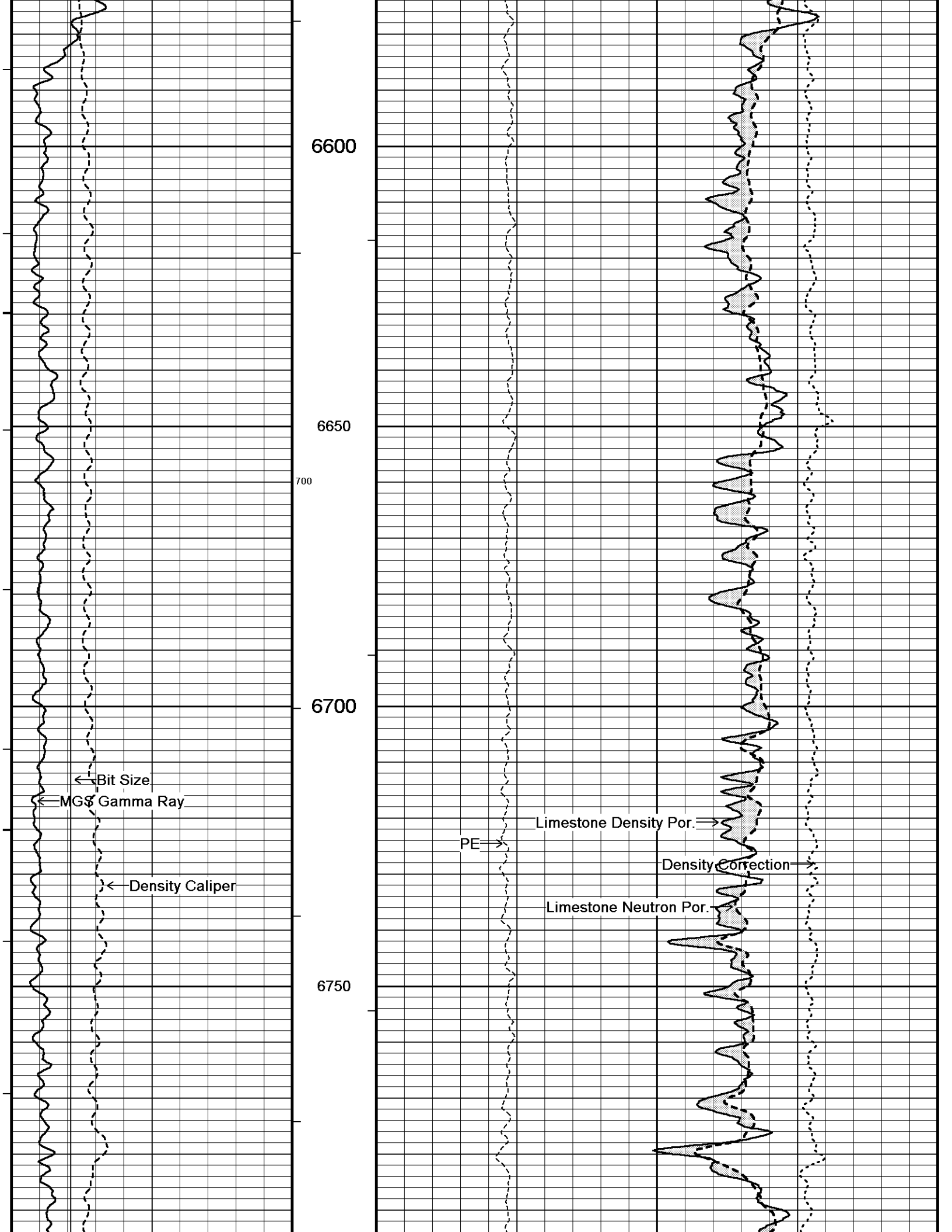
← Bit Size

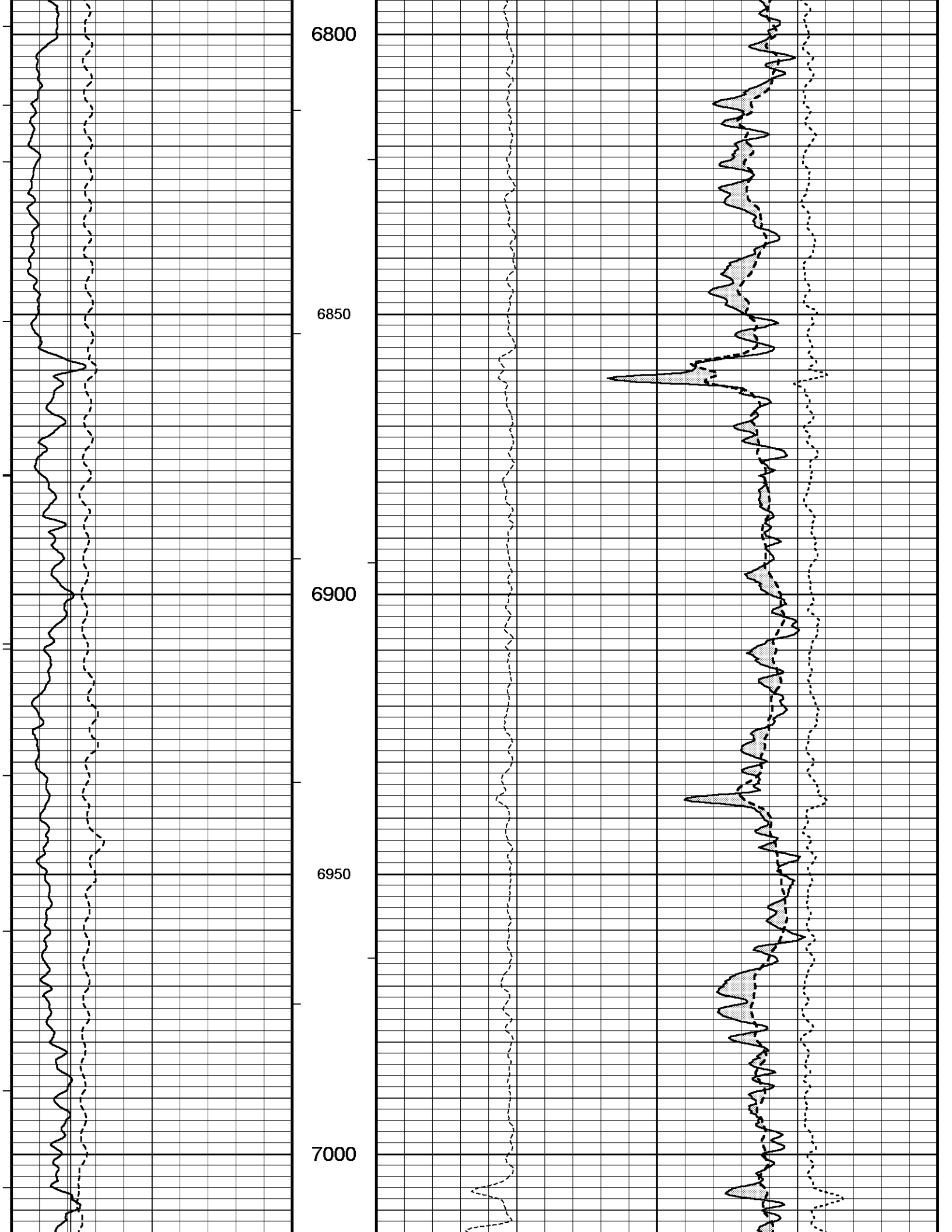


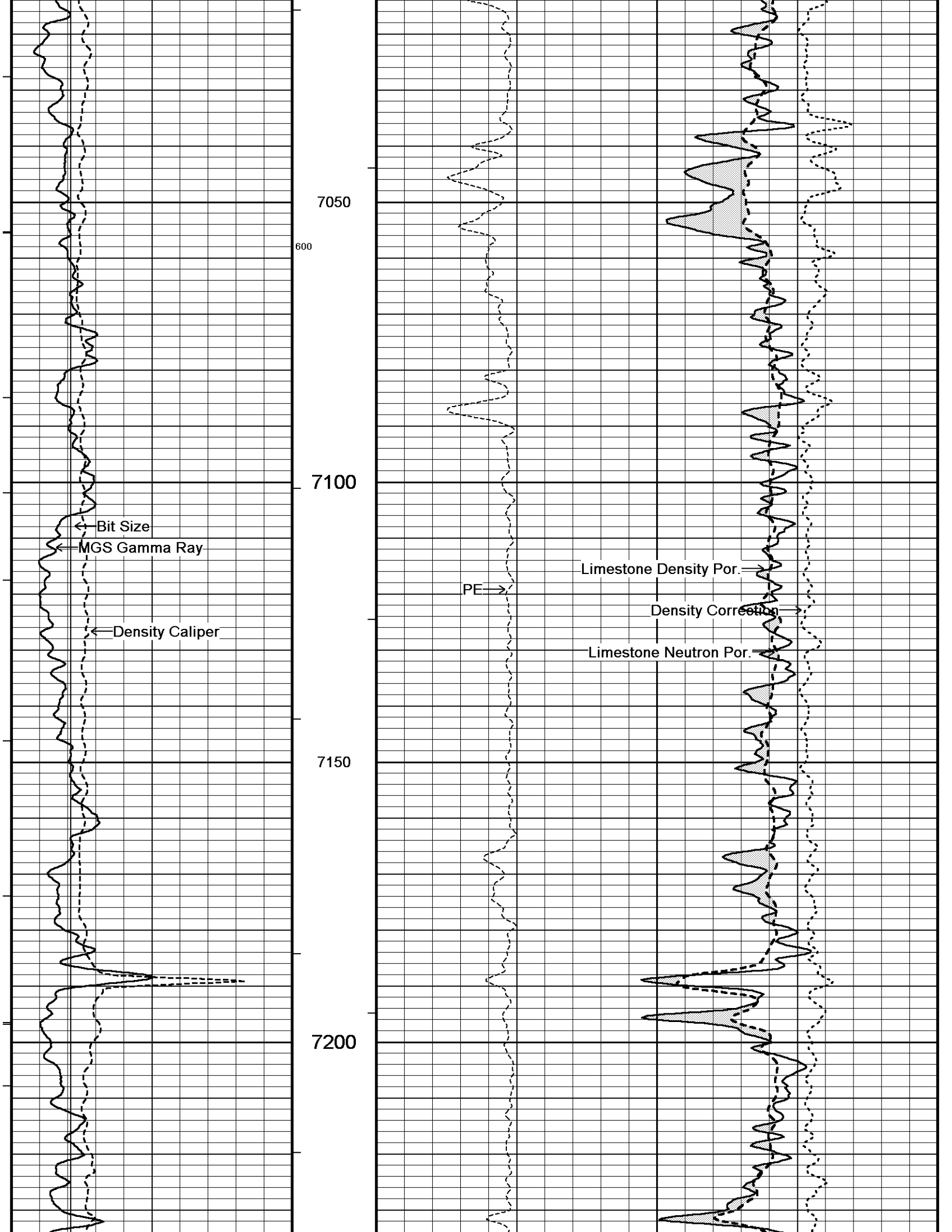


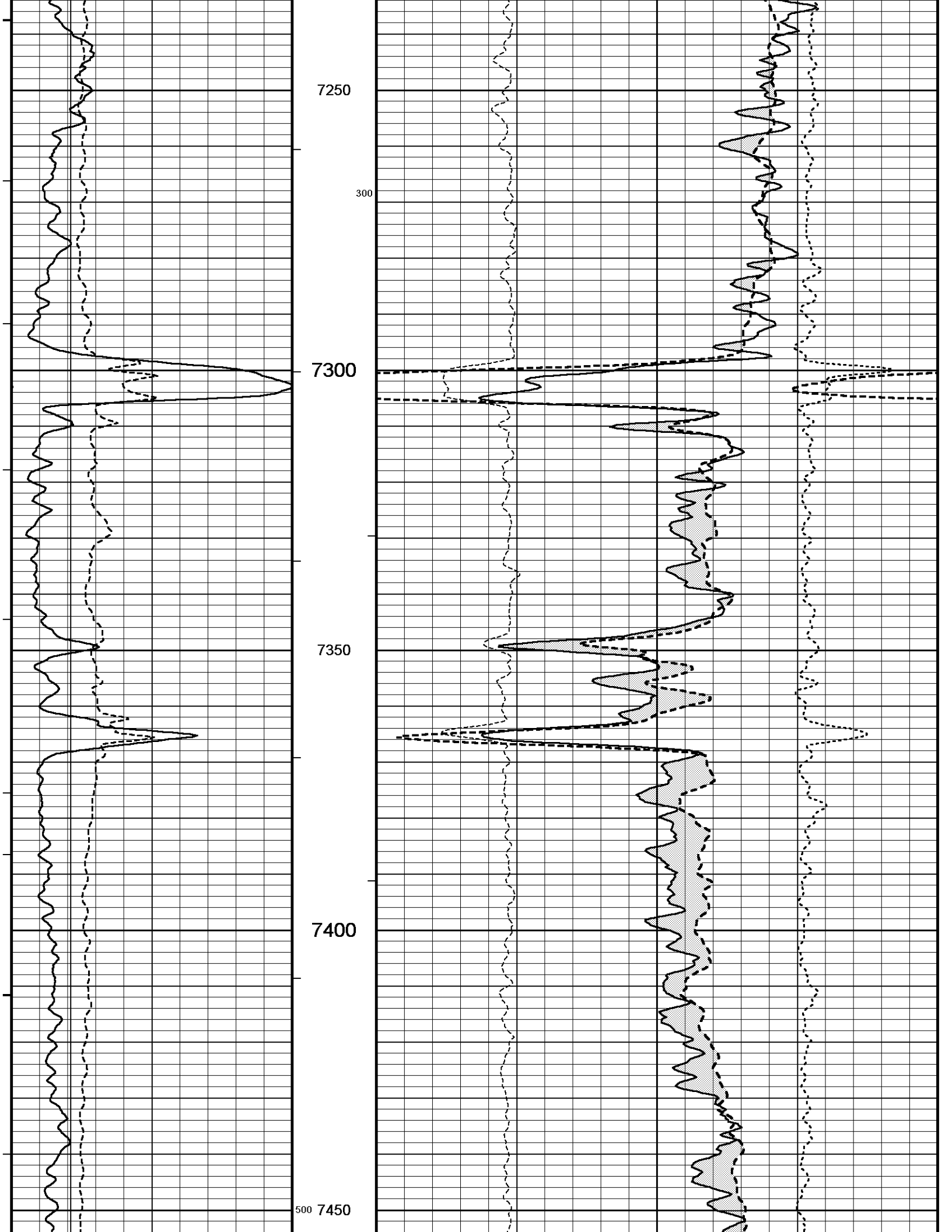


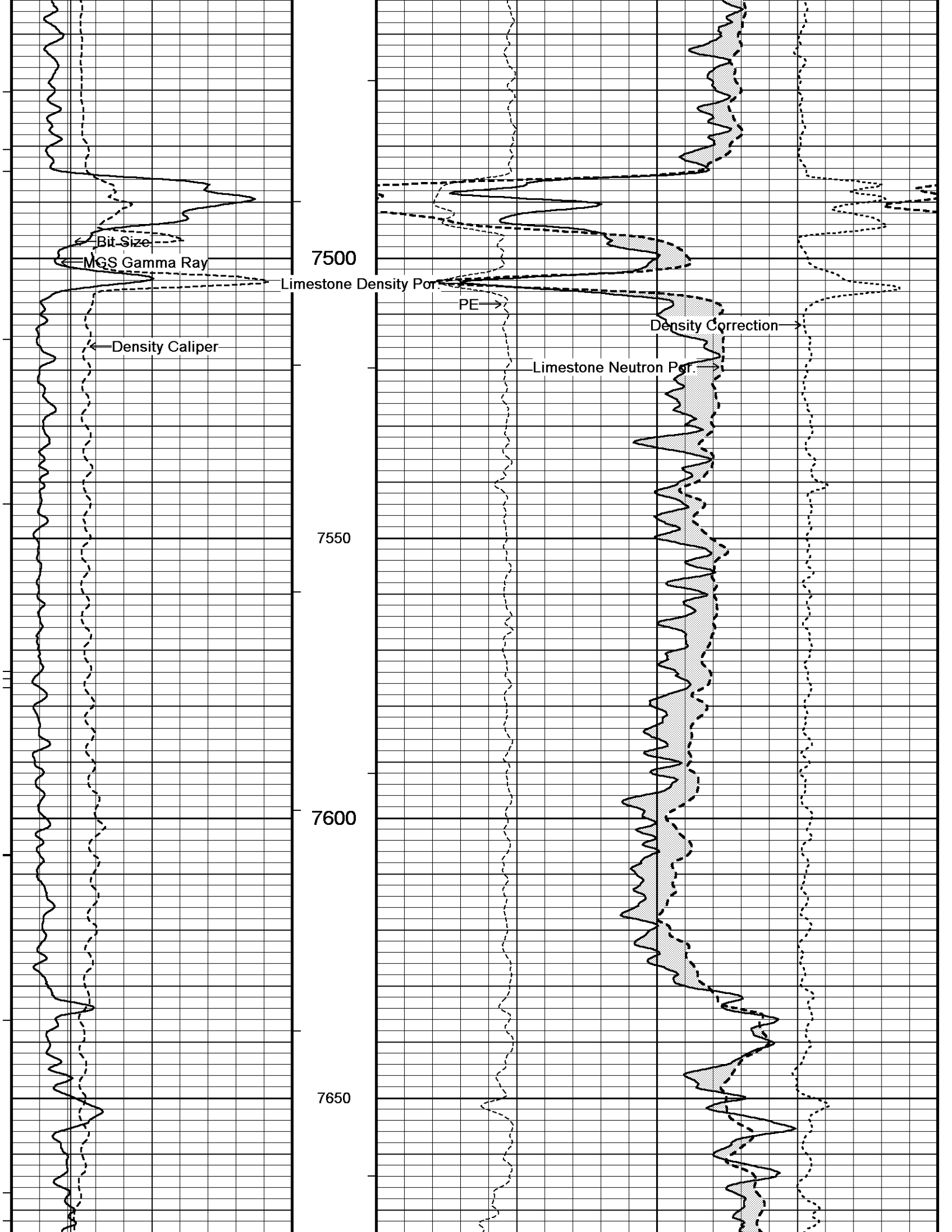


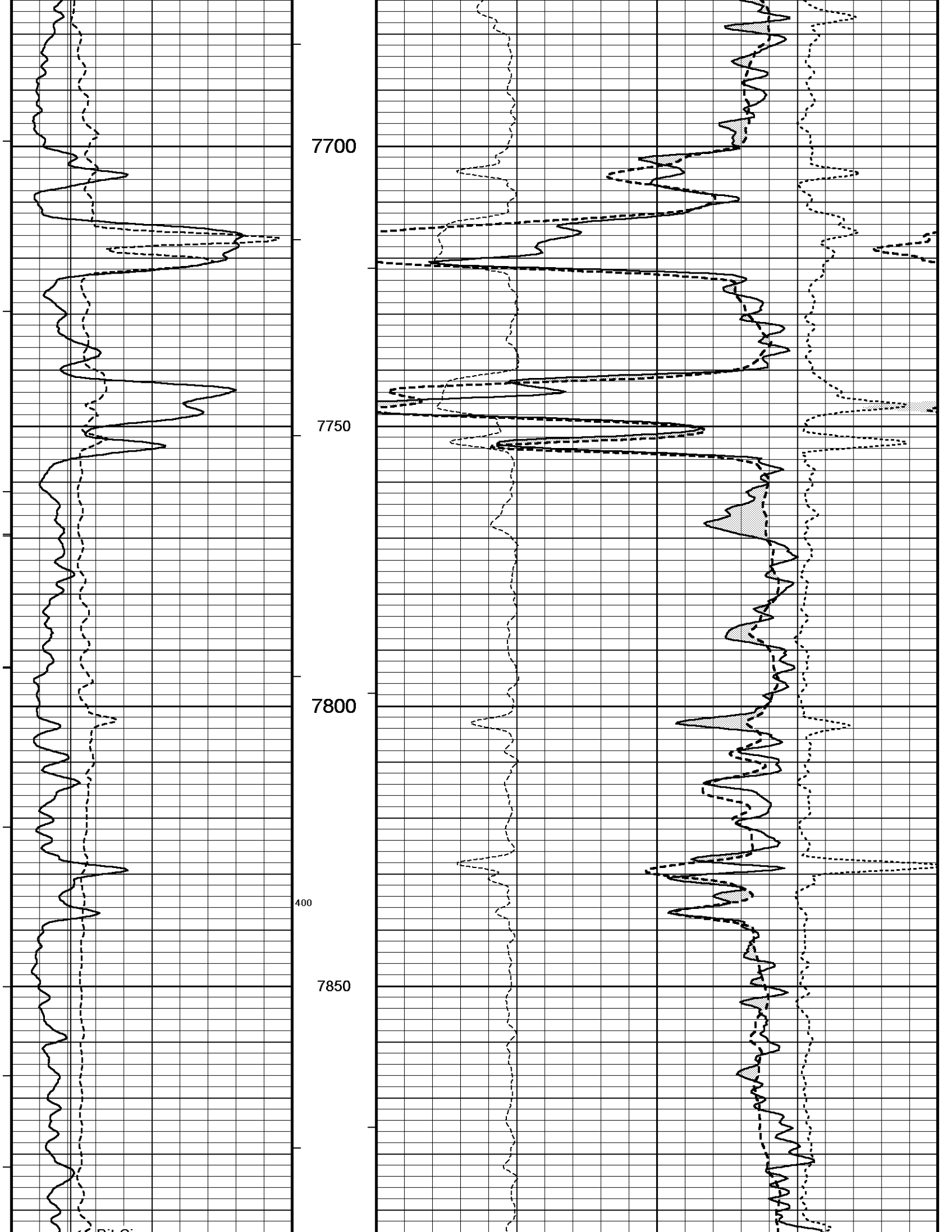


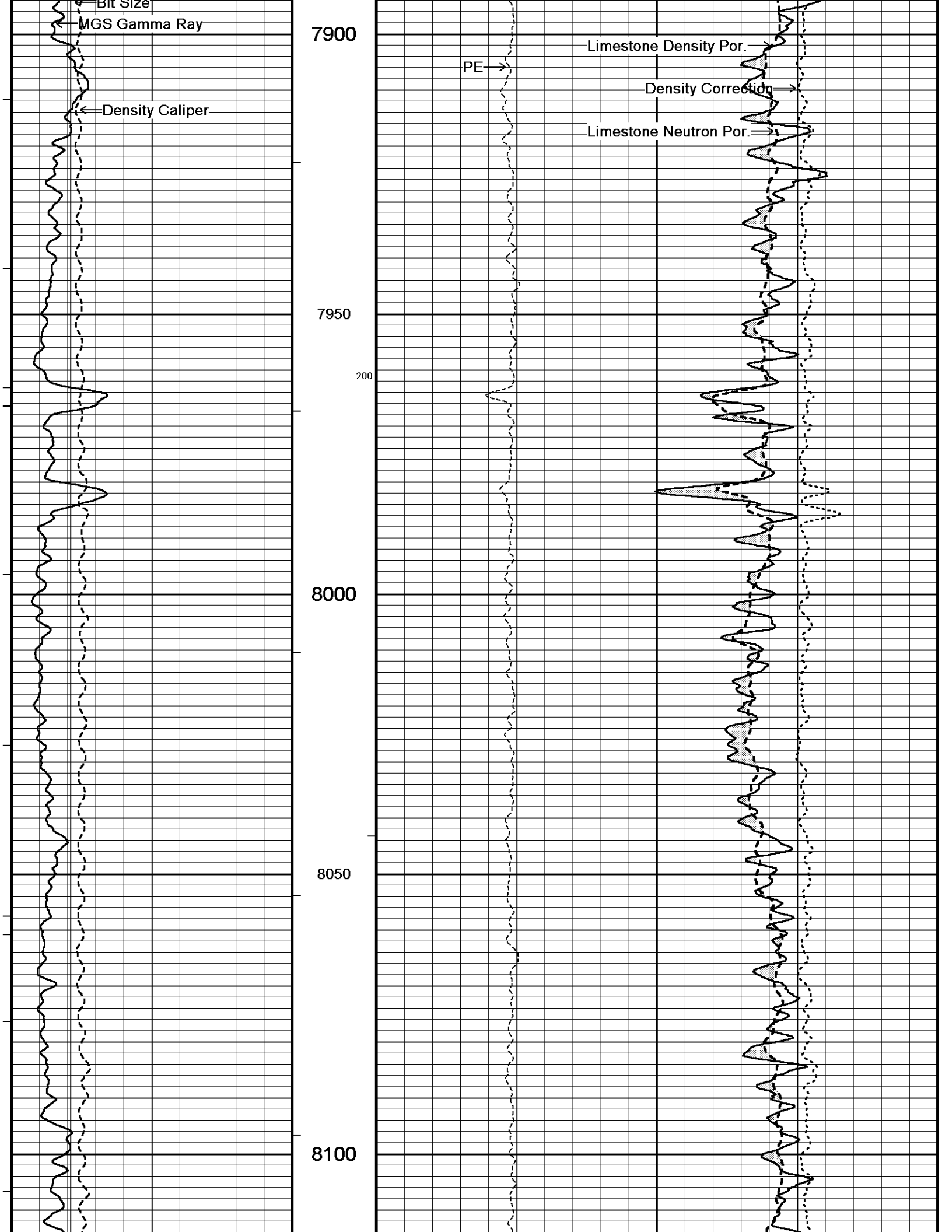


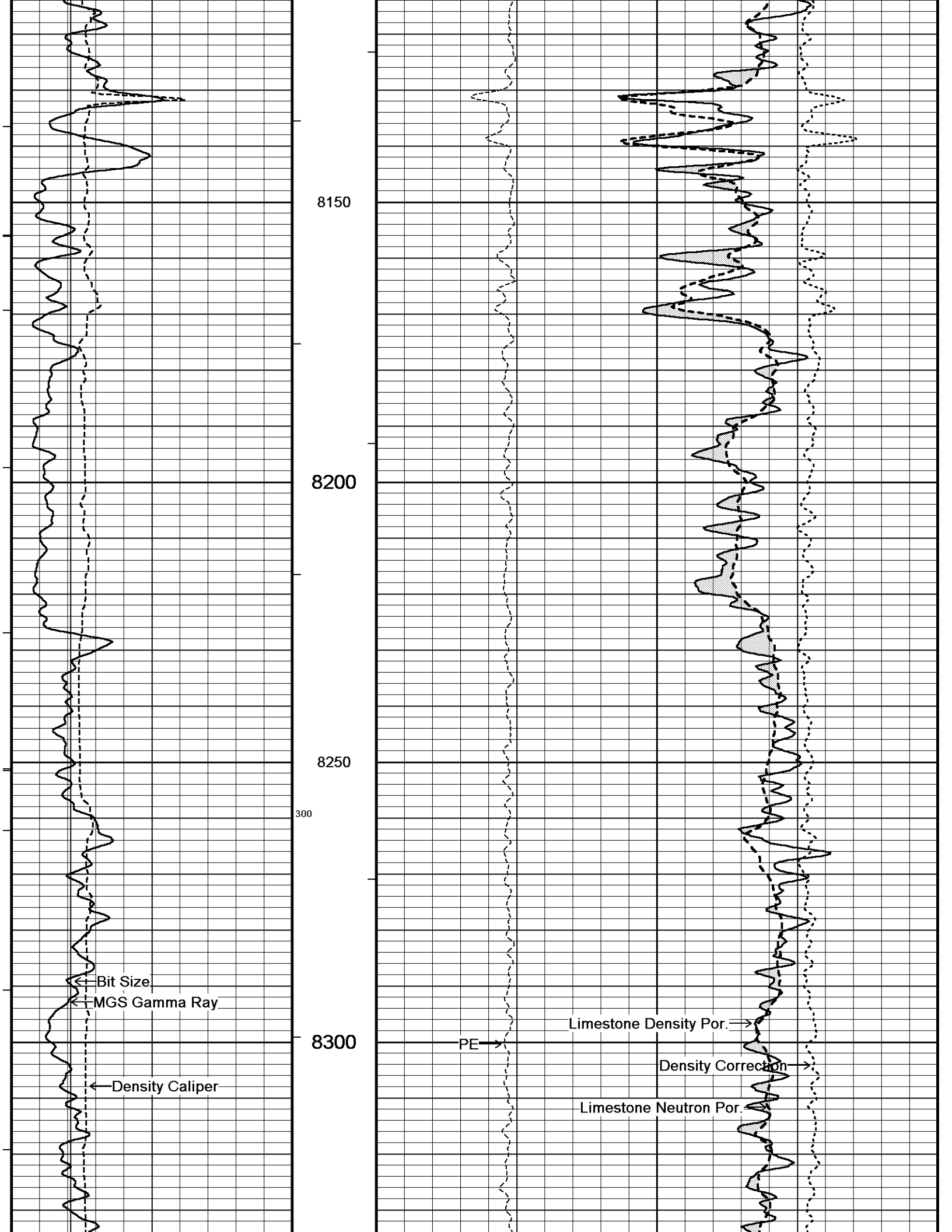




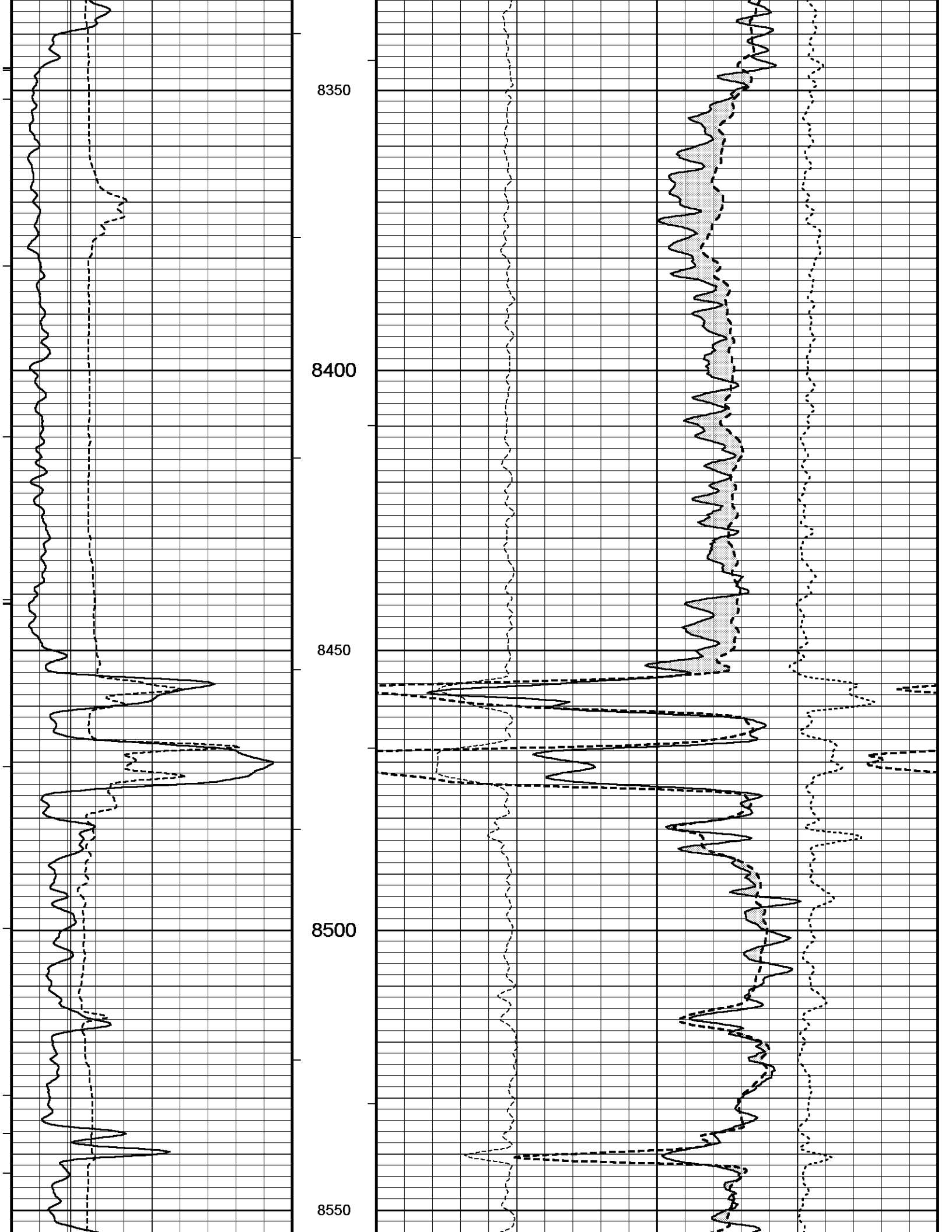


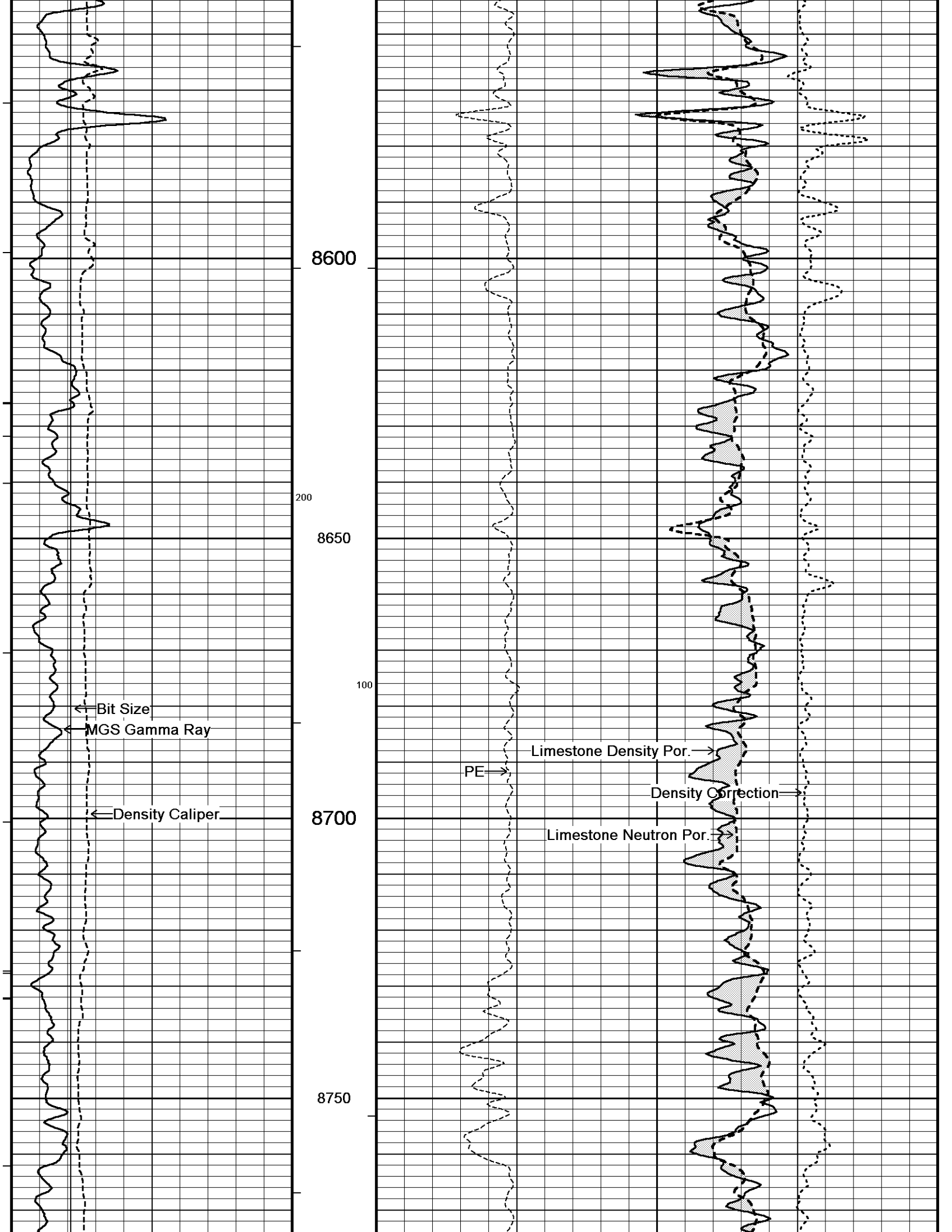












8600

200

8650

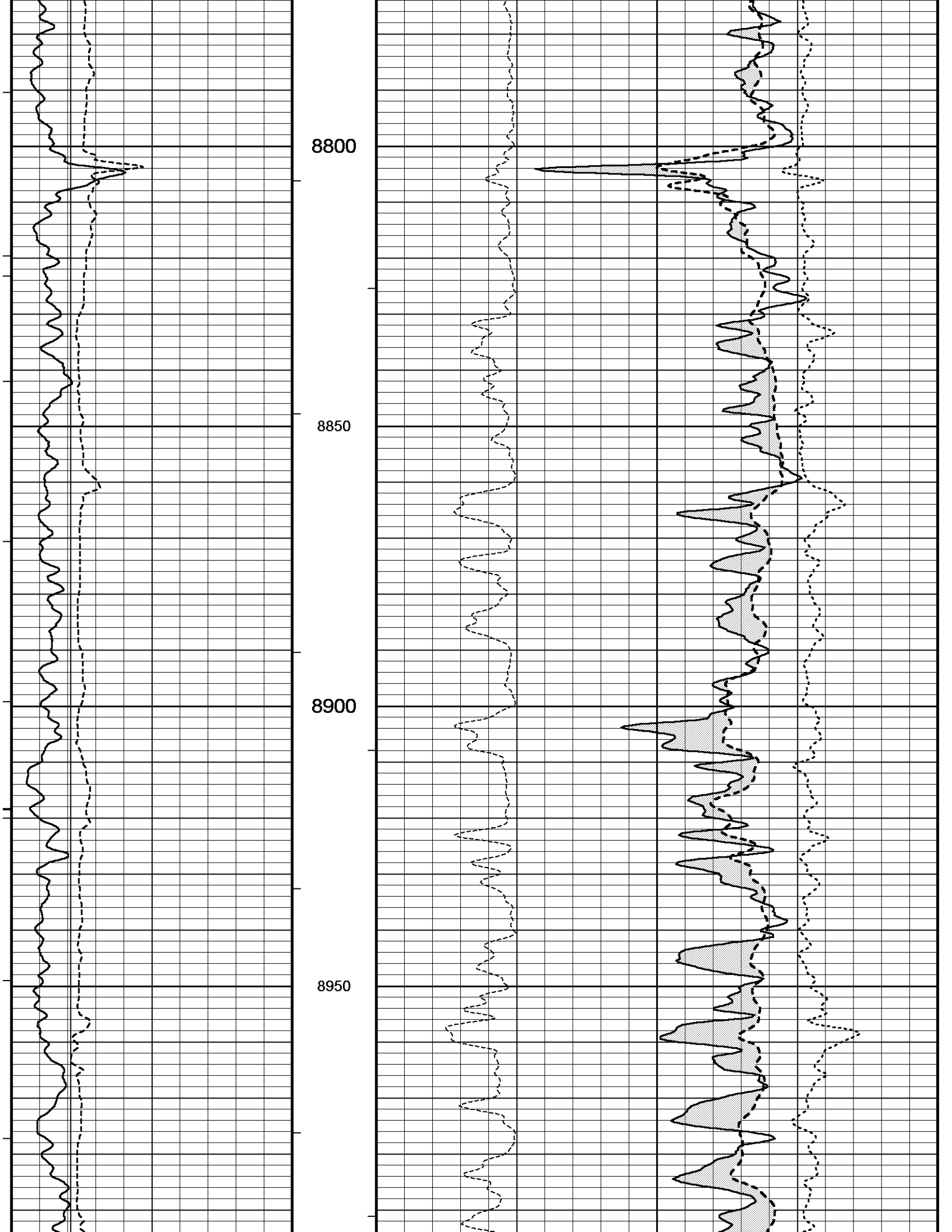
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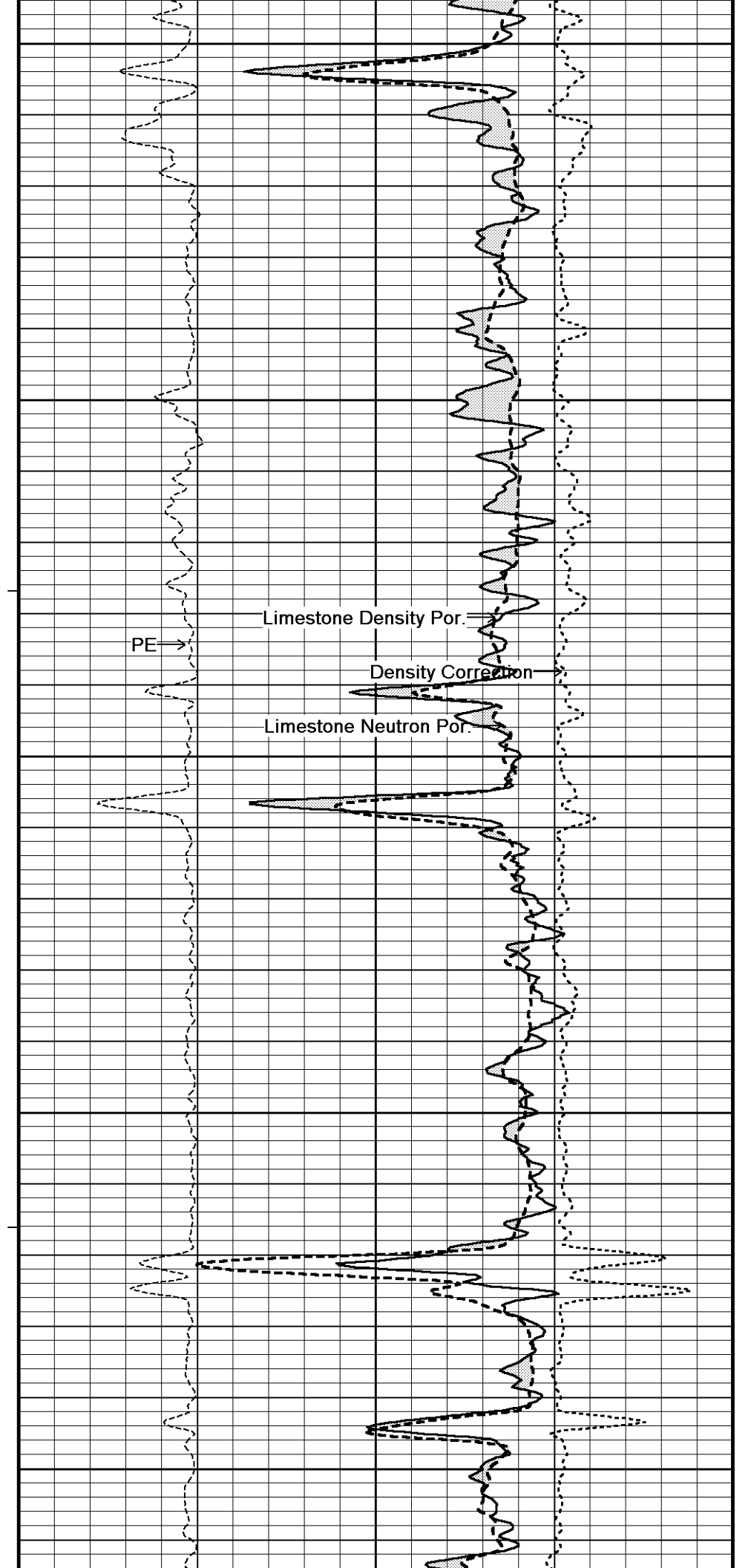
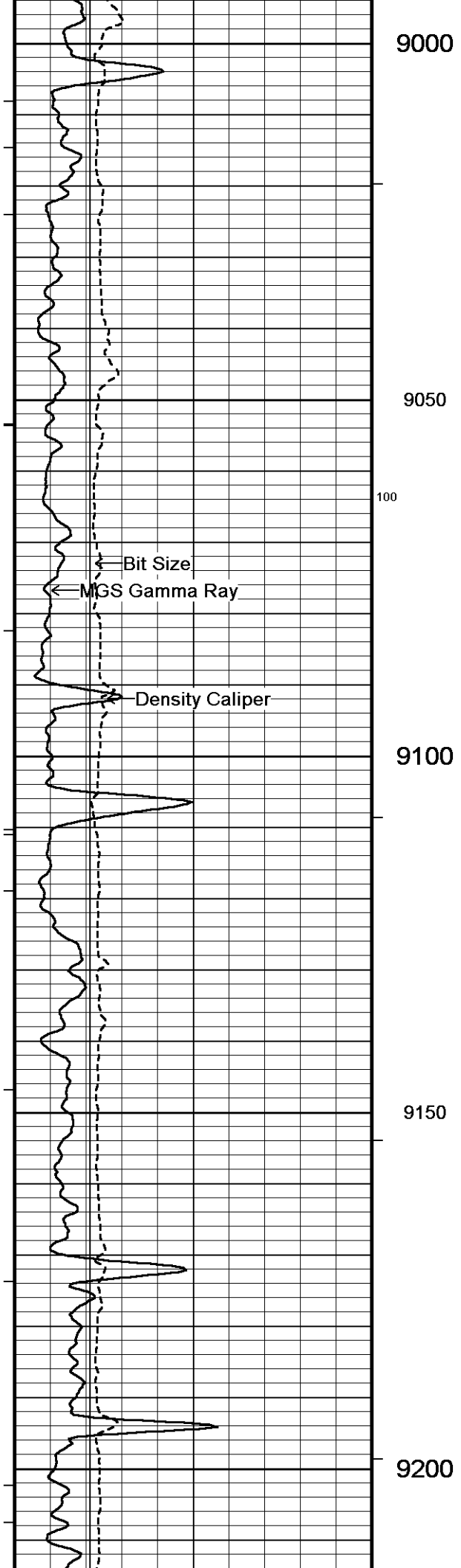
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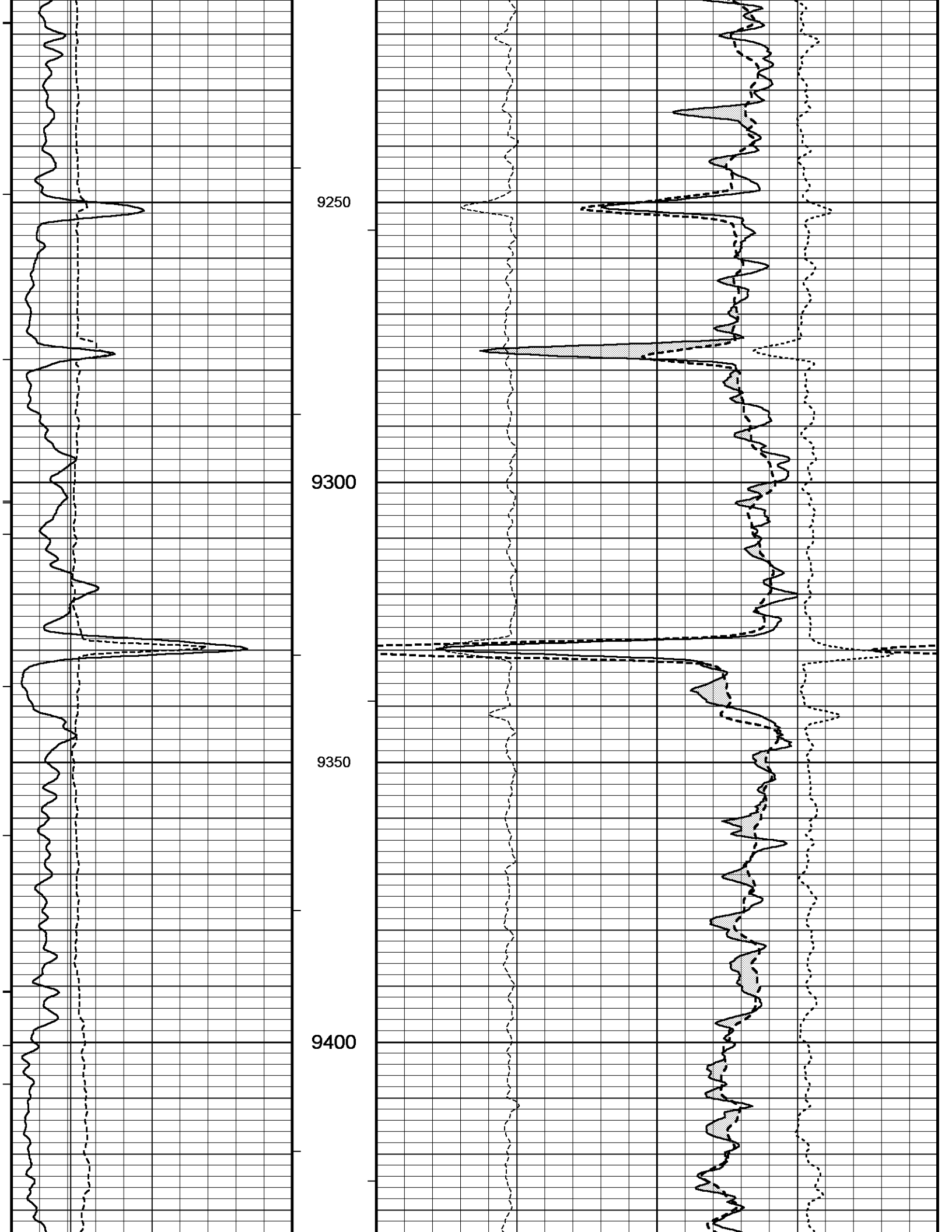
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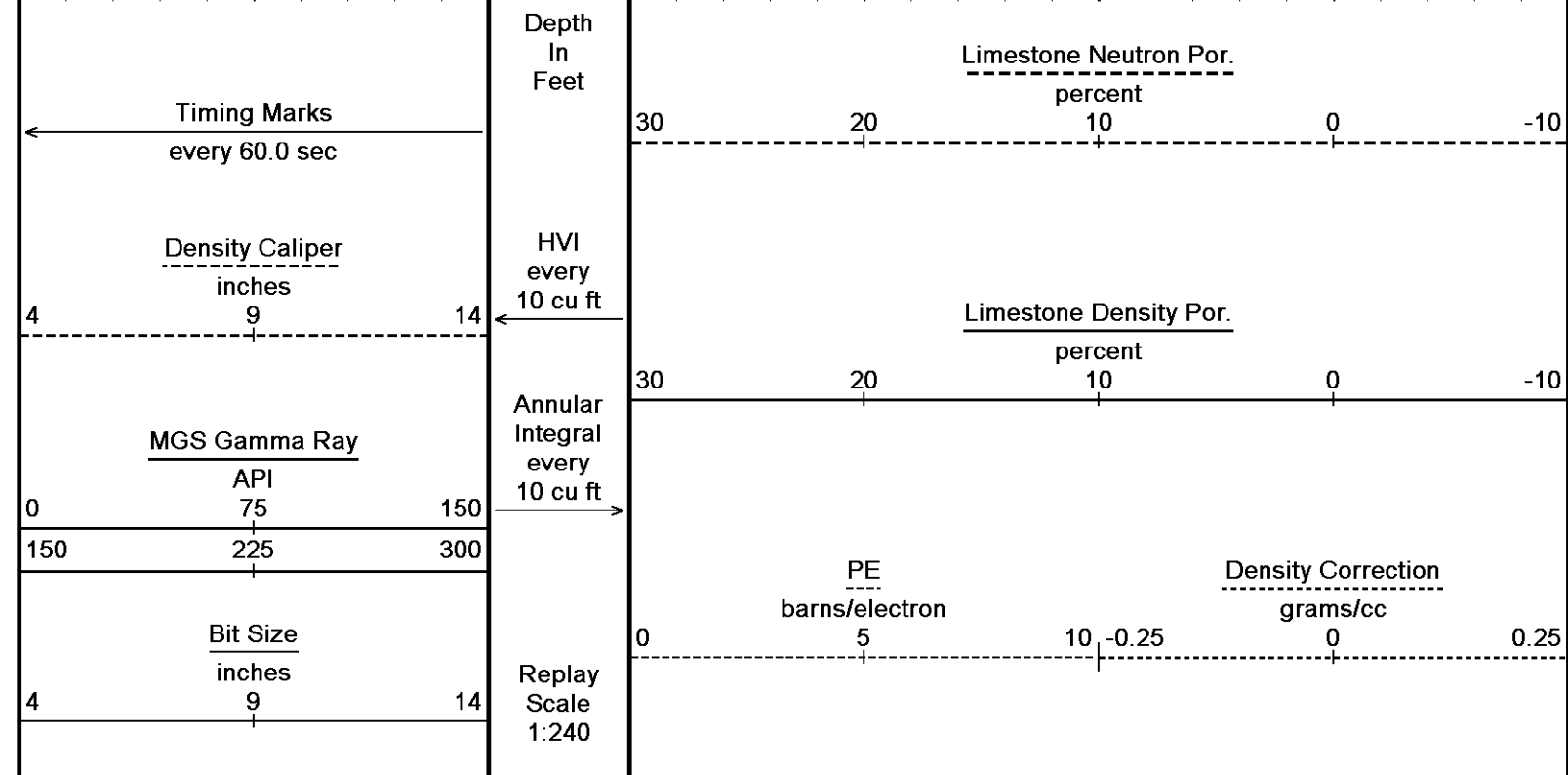
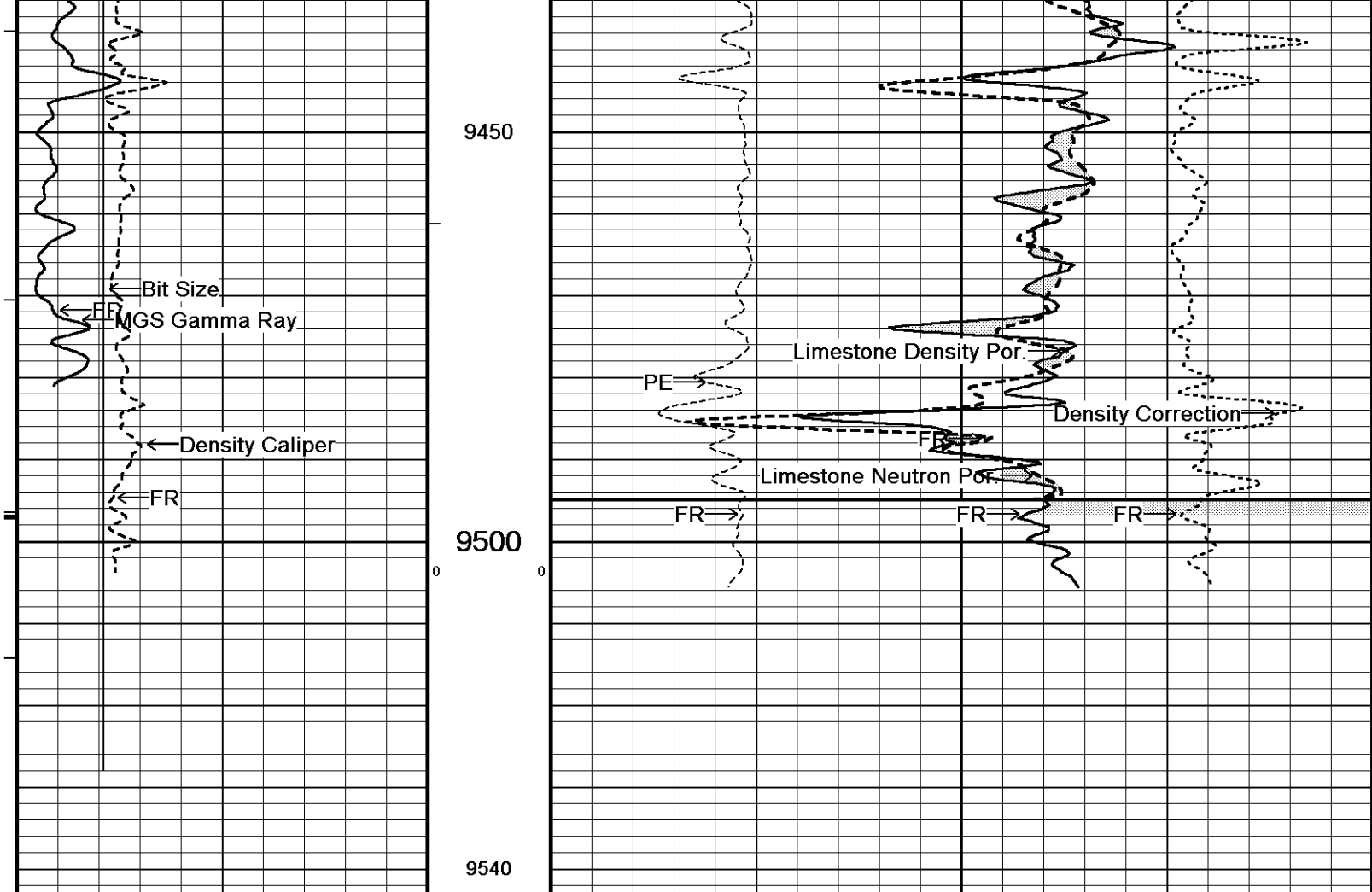
← Bit Size  
← MGS Gamma Ray  
← Density Caliper

PE →  
Limestone Density Por. →  
Density Correction →  
Limestone Neutron Por. →









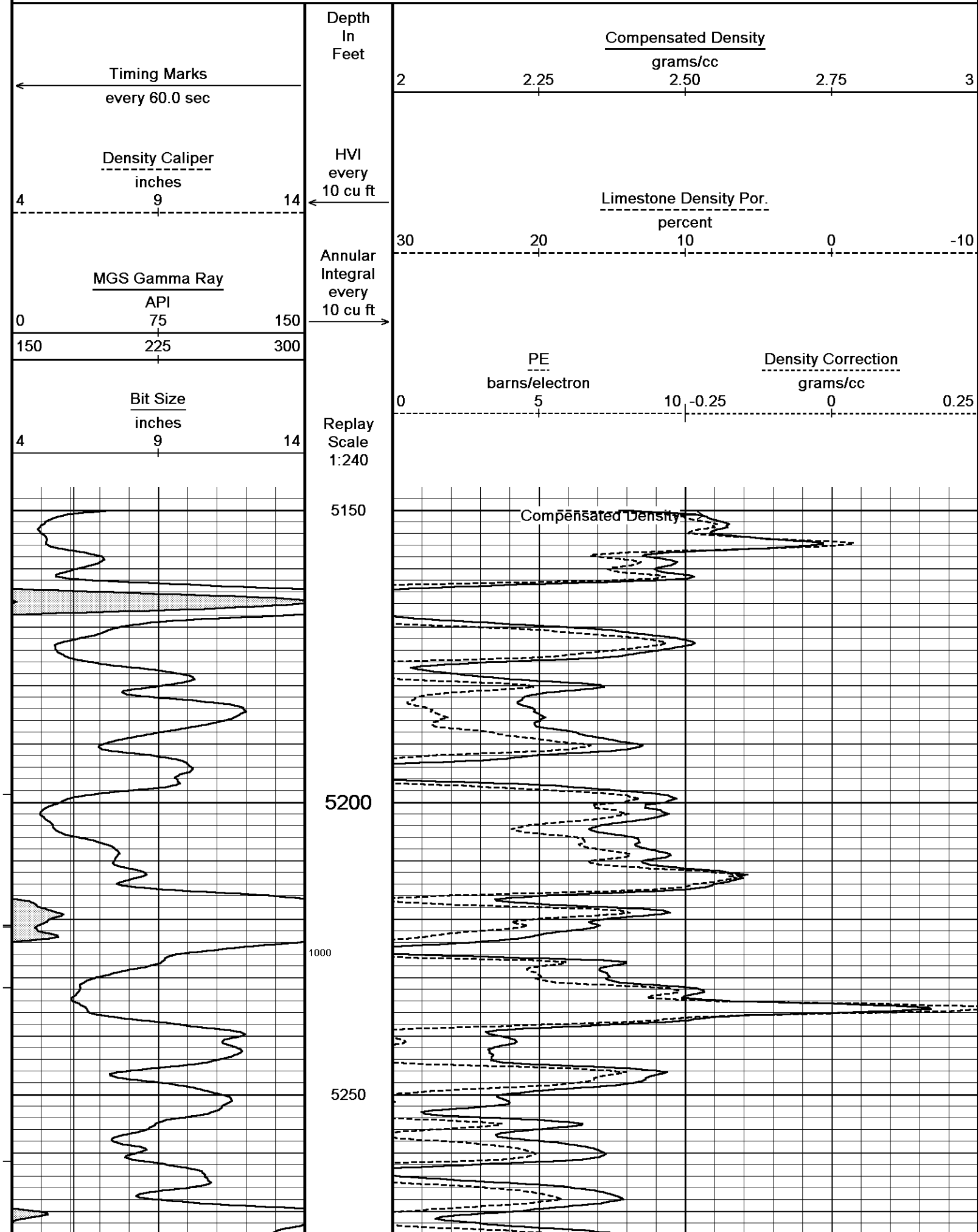
Depth Based Data - Maximum Sampling Increment 10.0cm  
 Filename: C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta  
 System Versions: Processed with 11.02.3186 Plotted with 11.02.3186

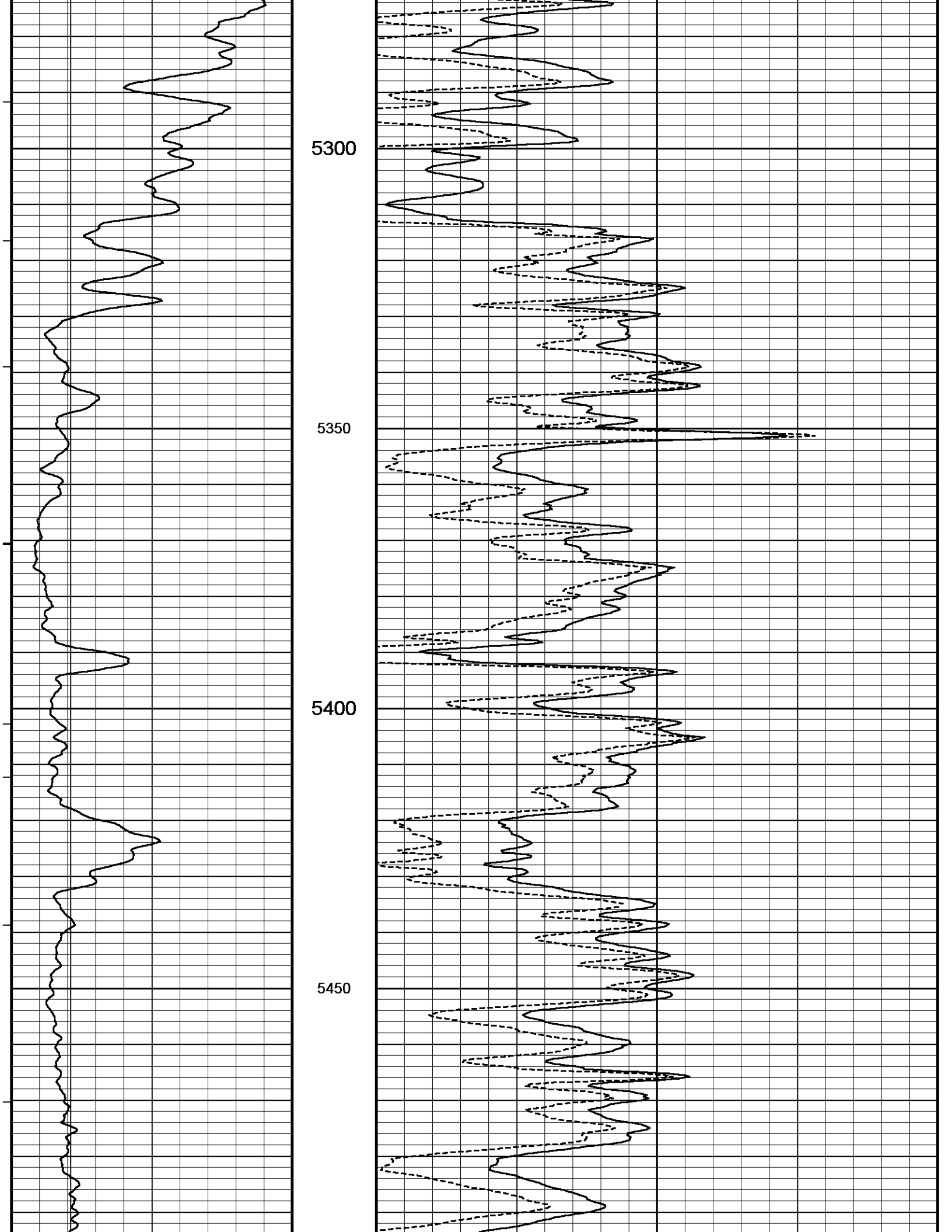
Plotted on 16-NOV-2011 17:42  
 Recorded on 16-NOV-2011 15:37

5 INCH MAIN LOG

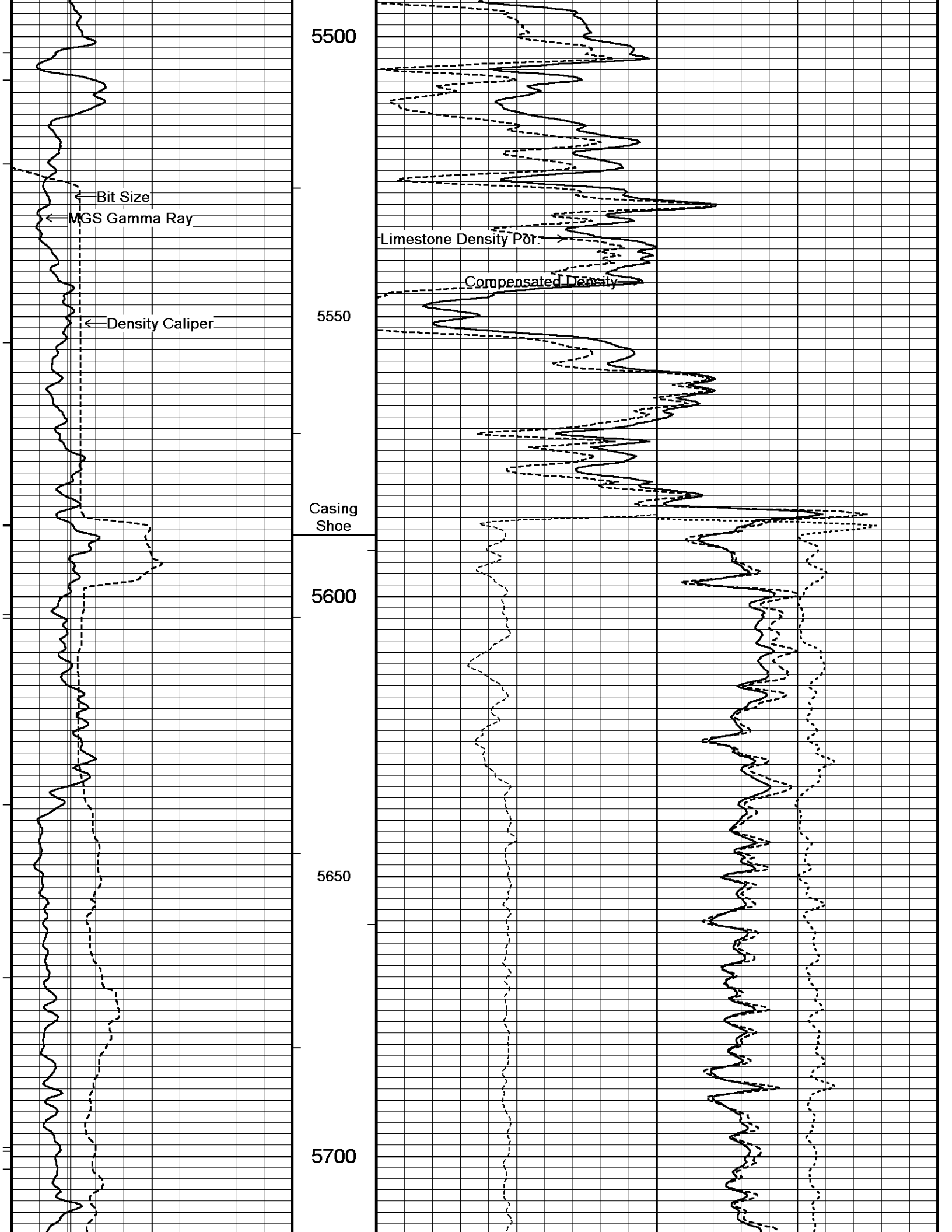
5 INCH BULK DENSITY LOG DSC

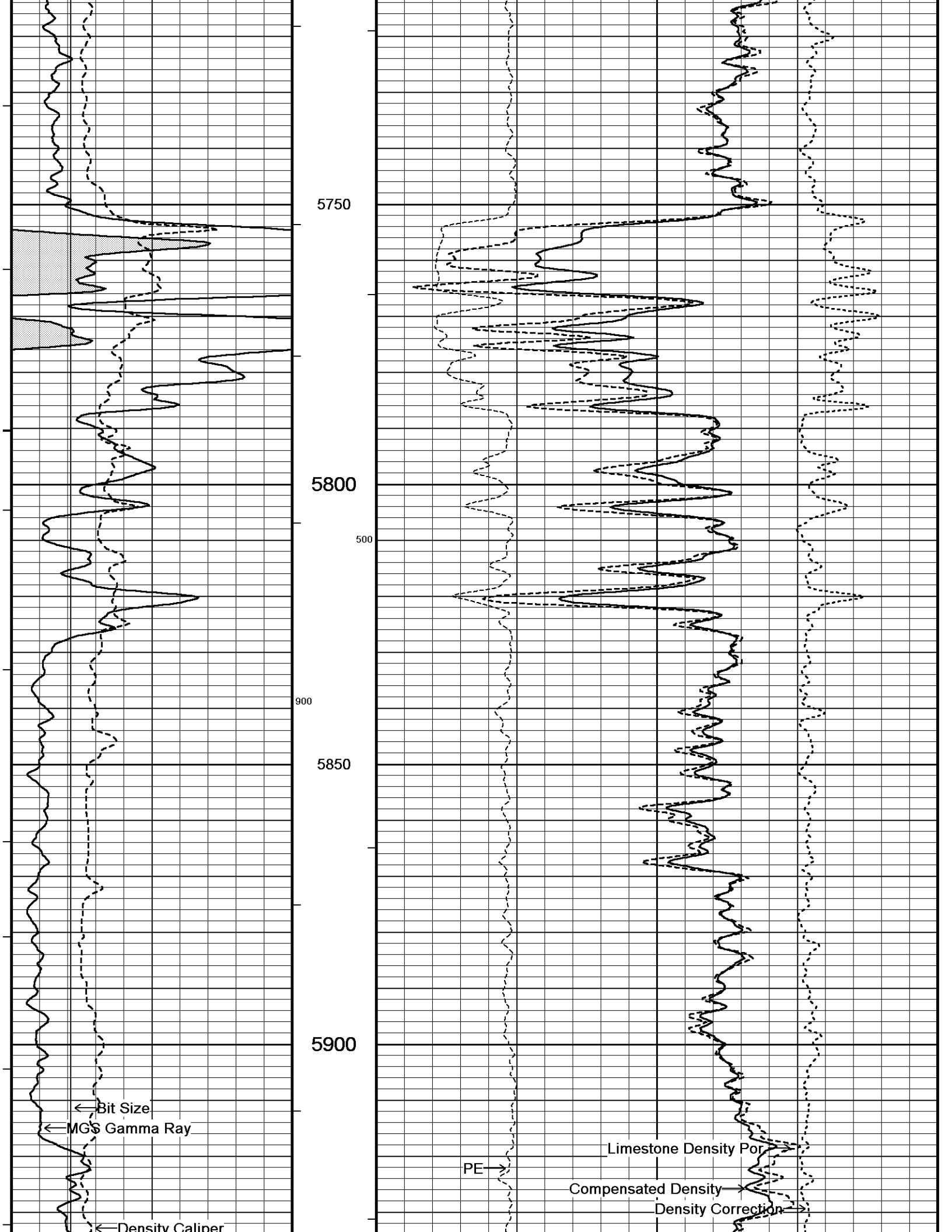
Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 16-NOV-2011 17:42



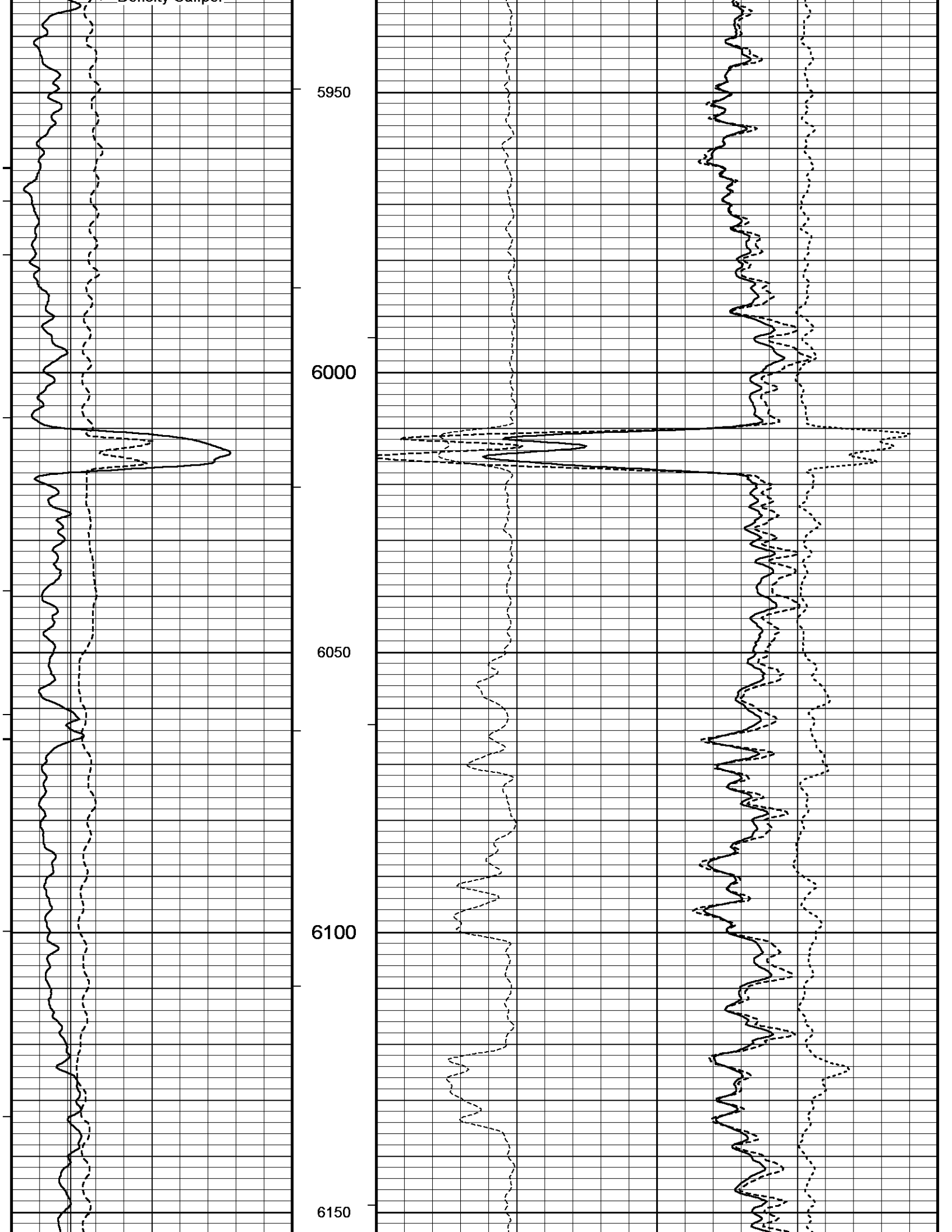


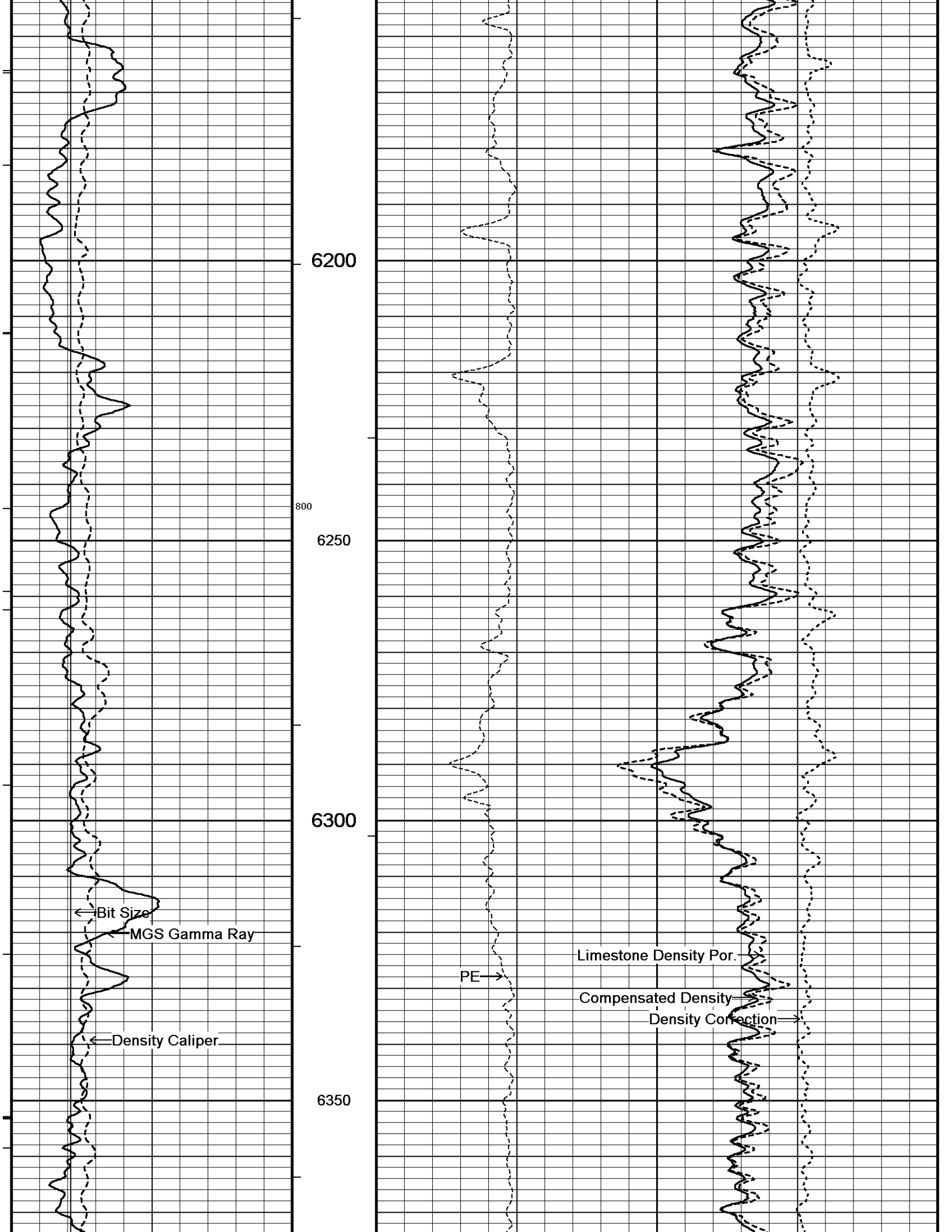


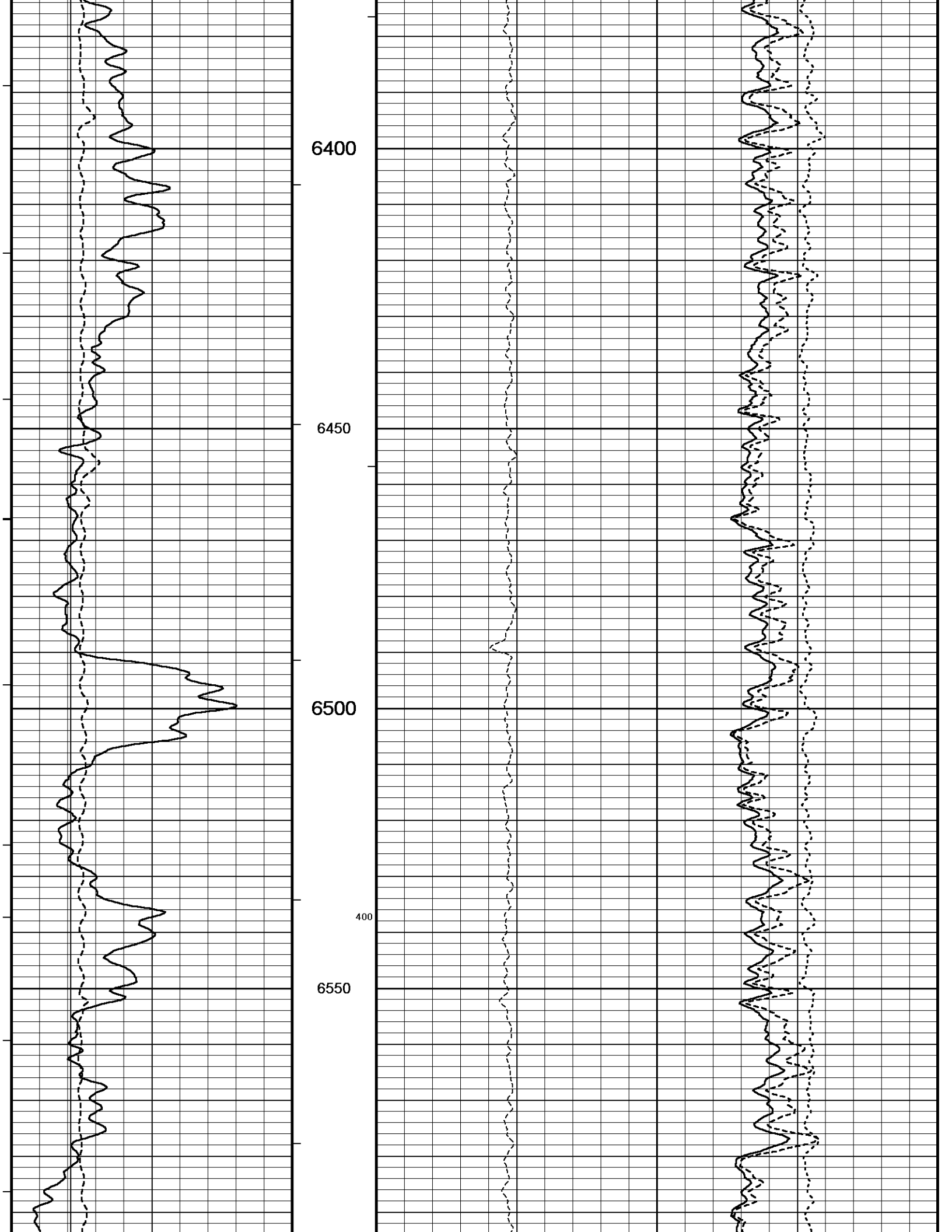


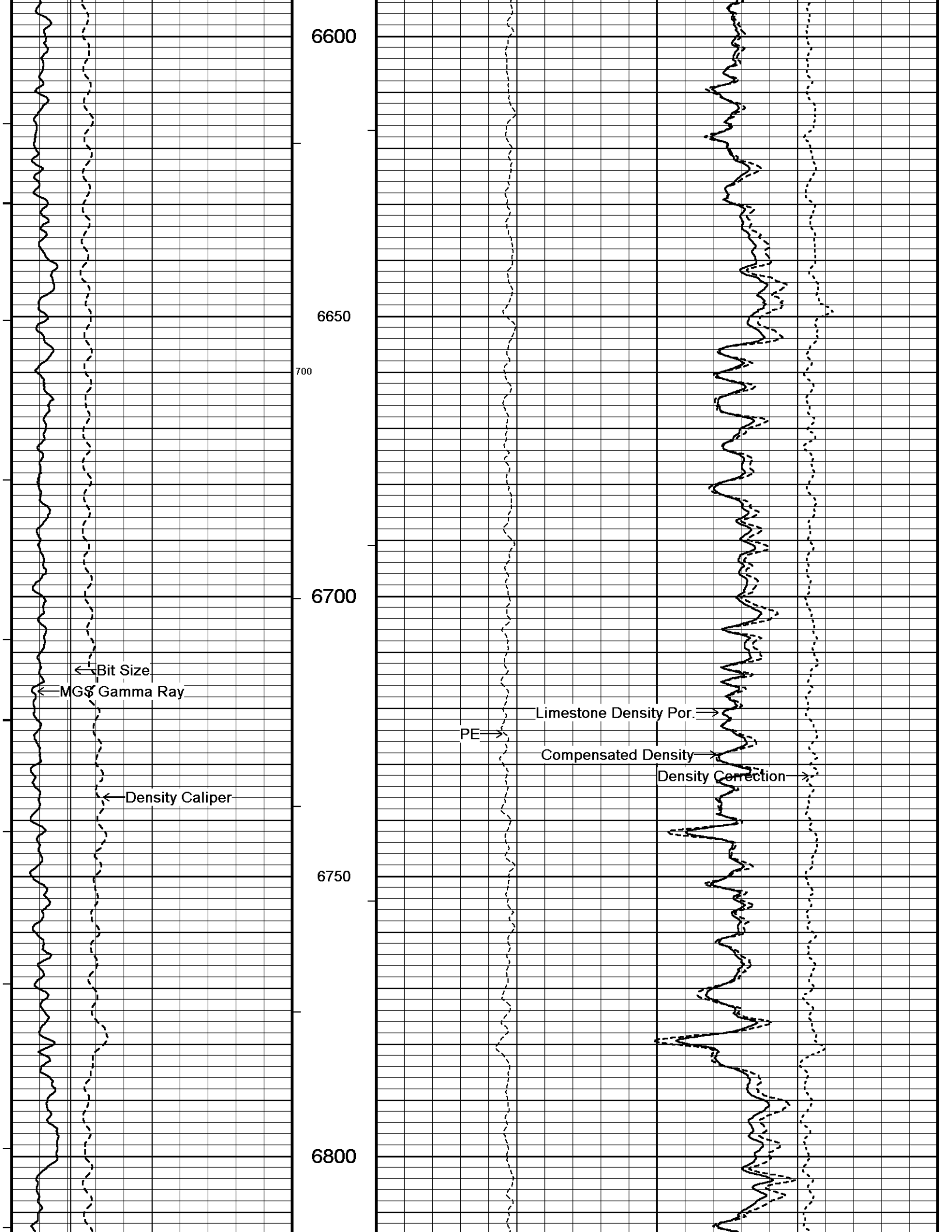


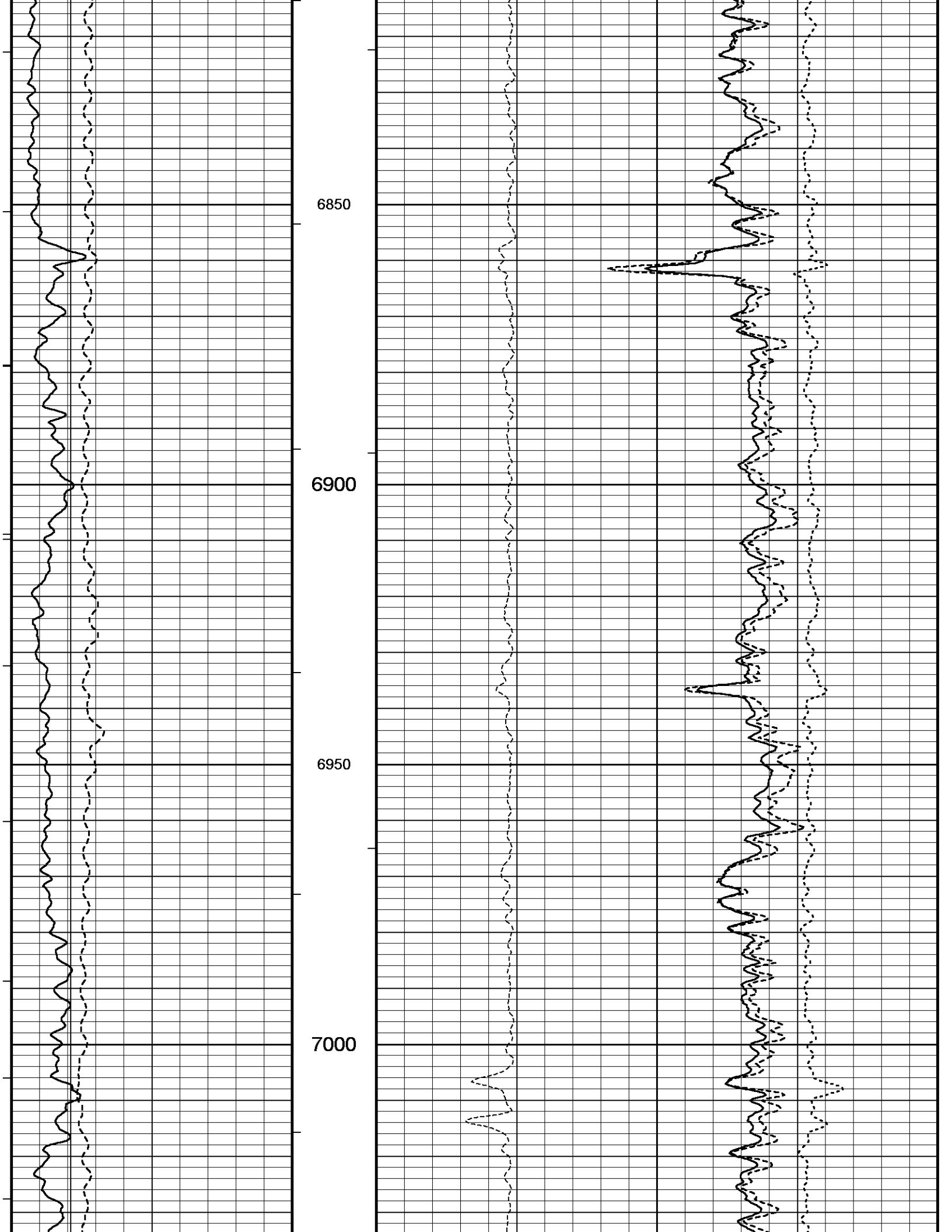
Density Sample

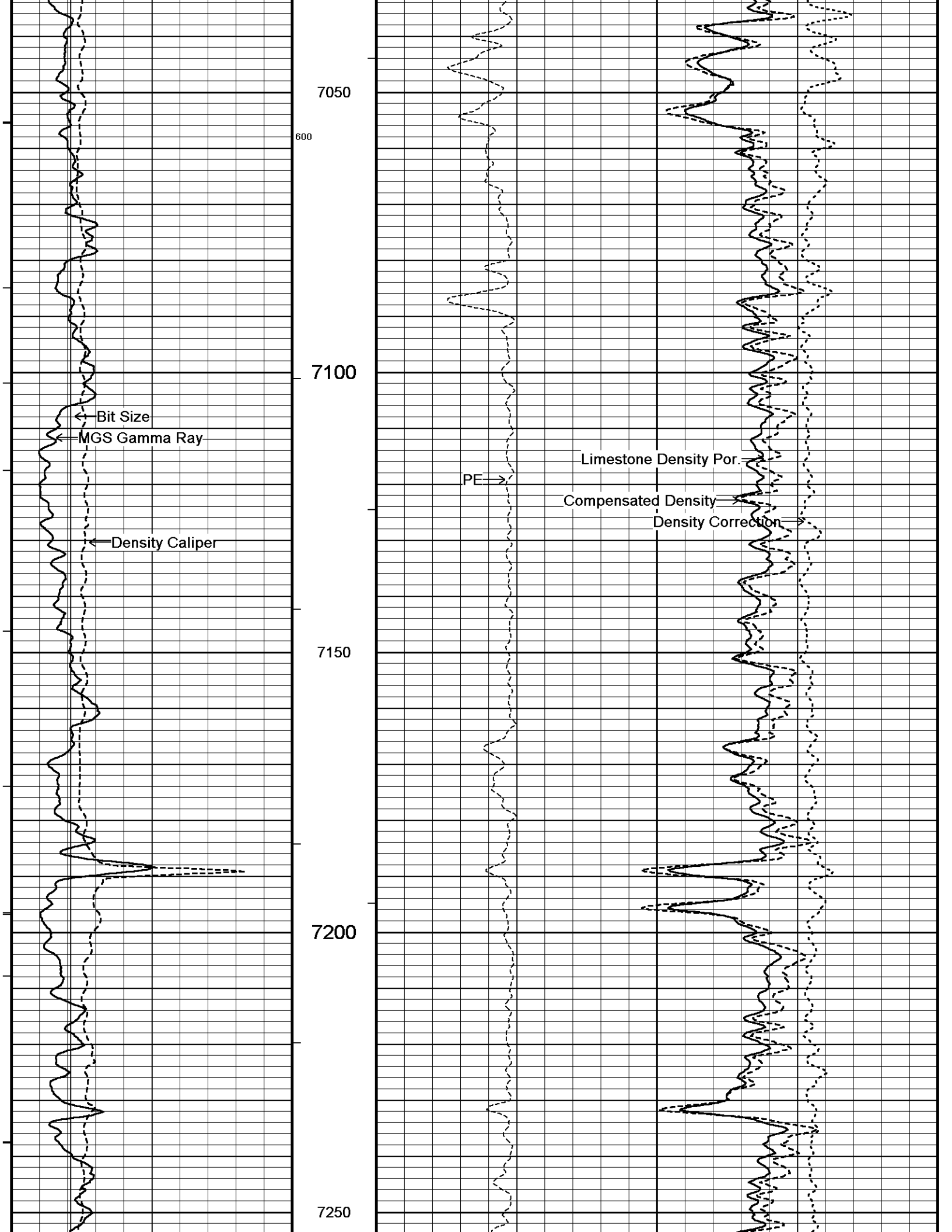




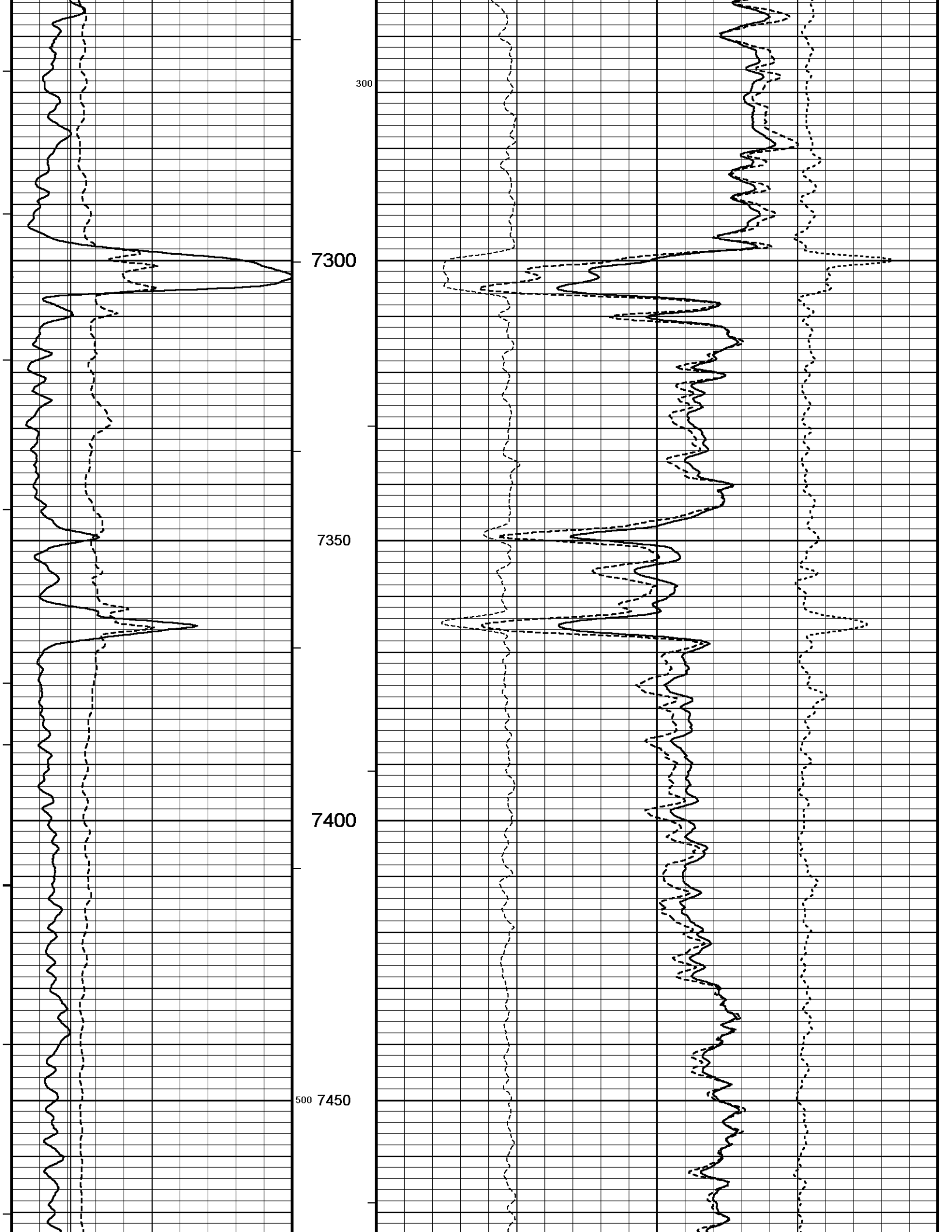


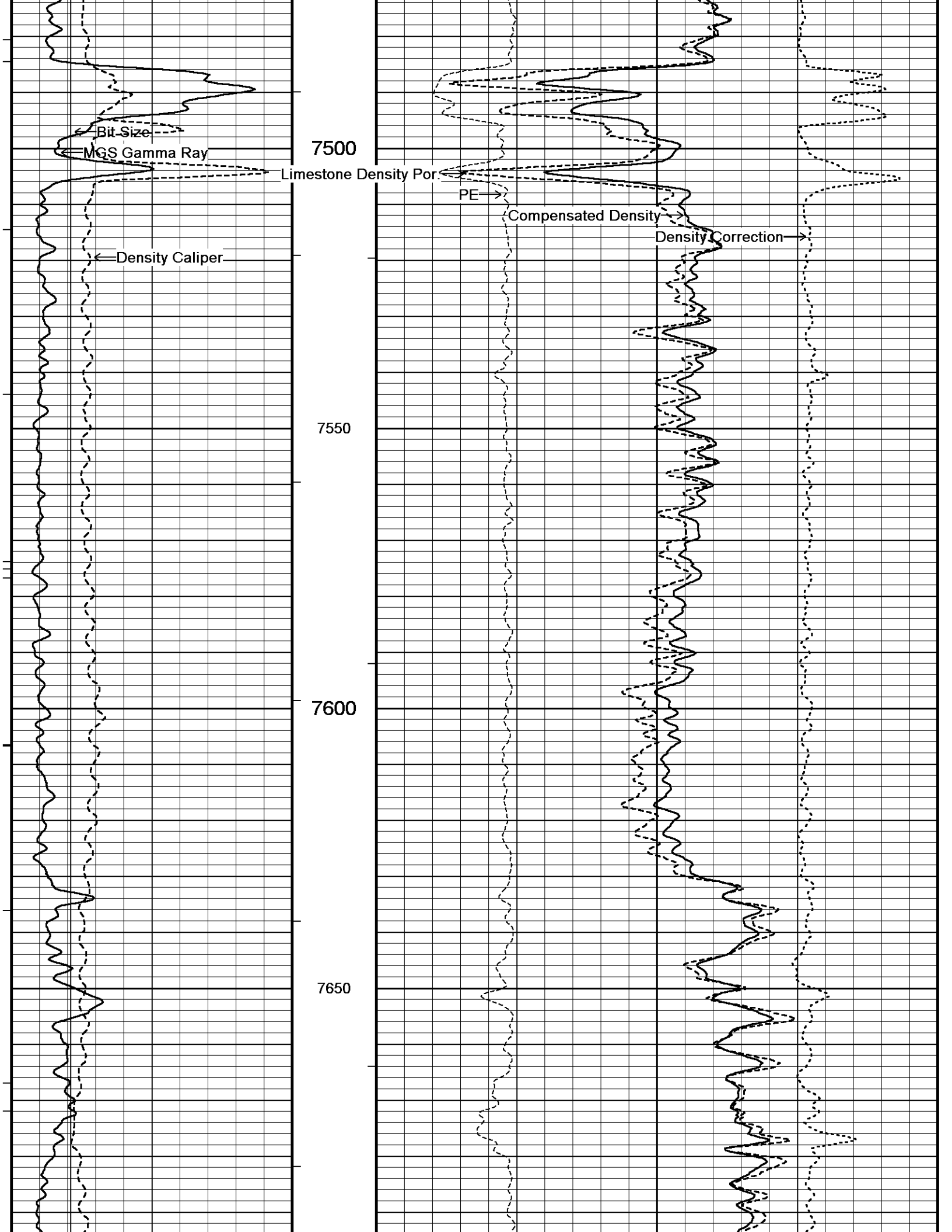


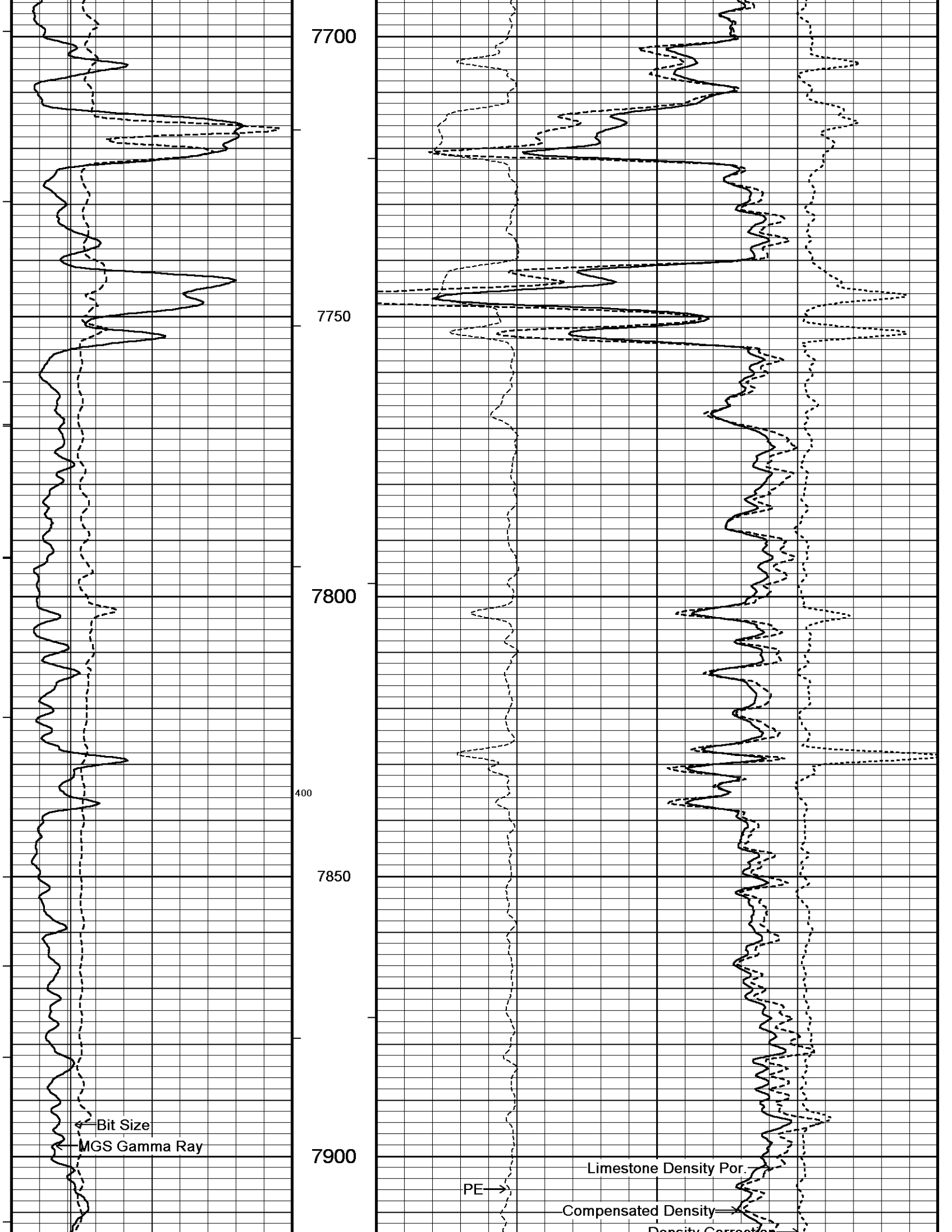


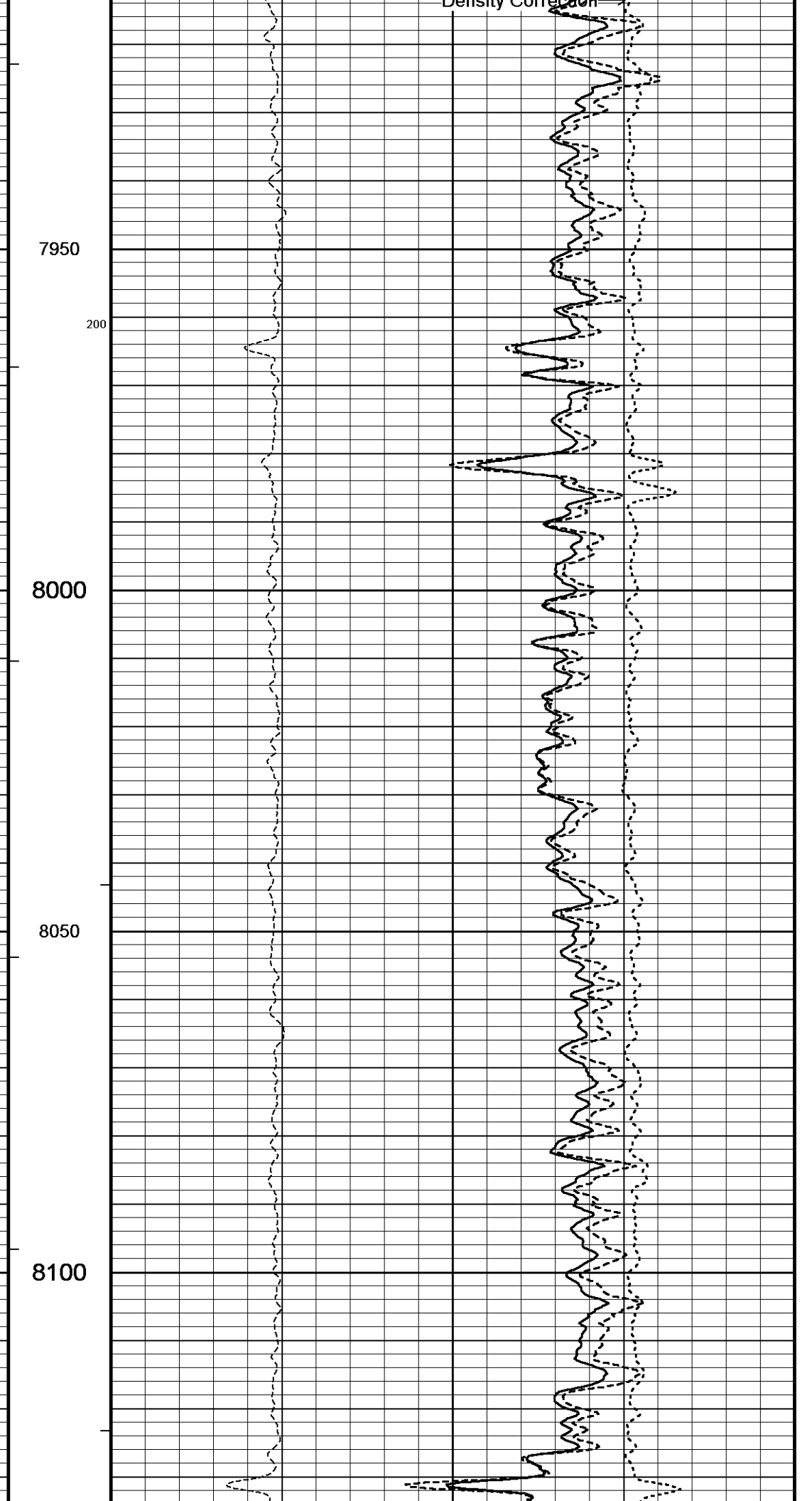
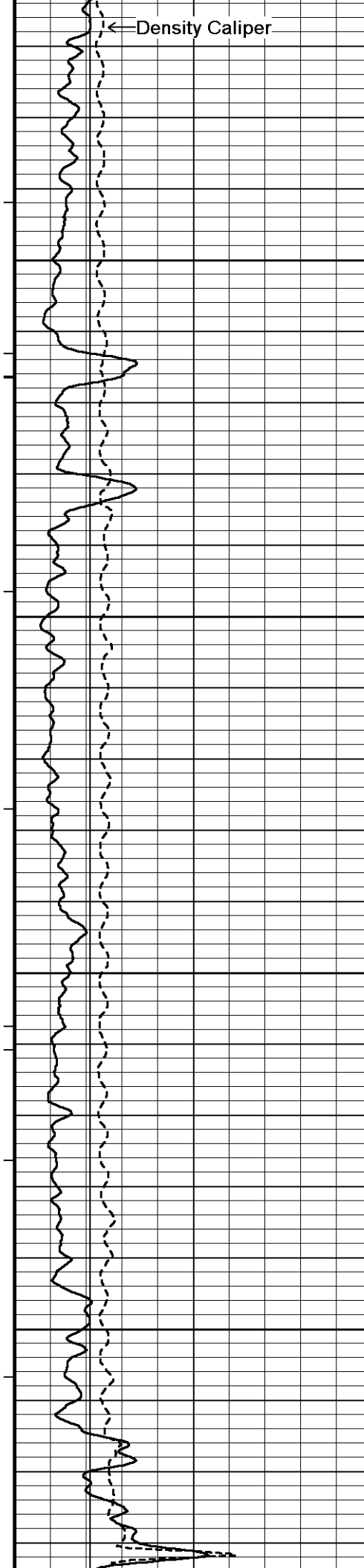


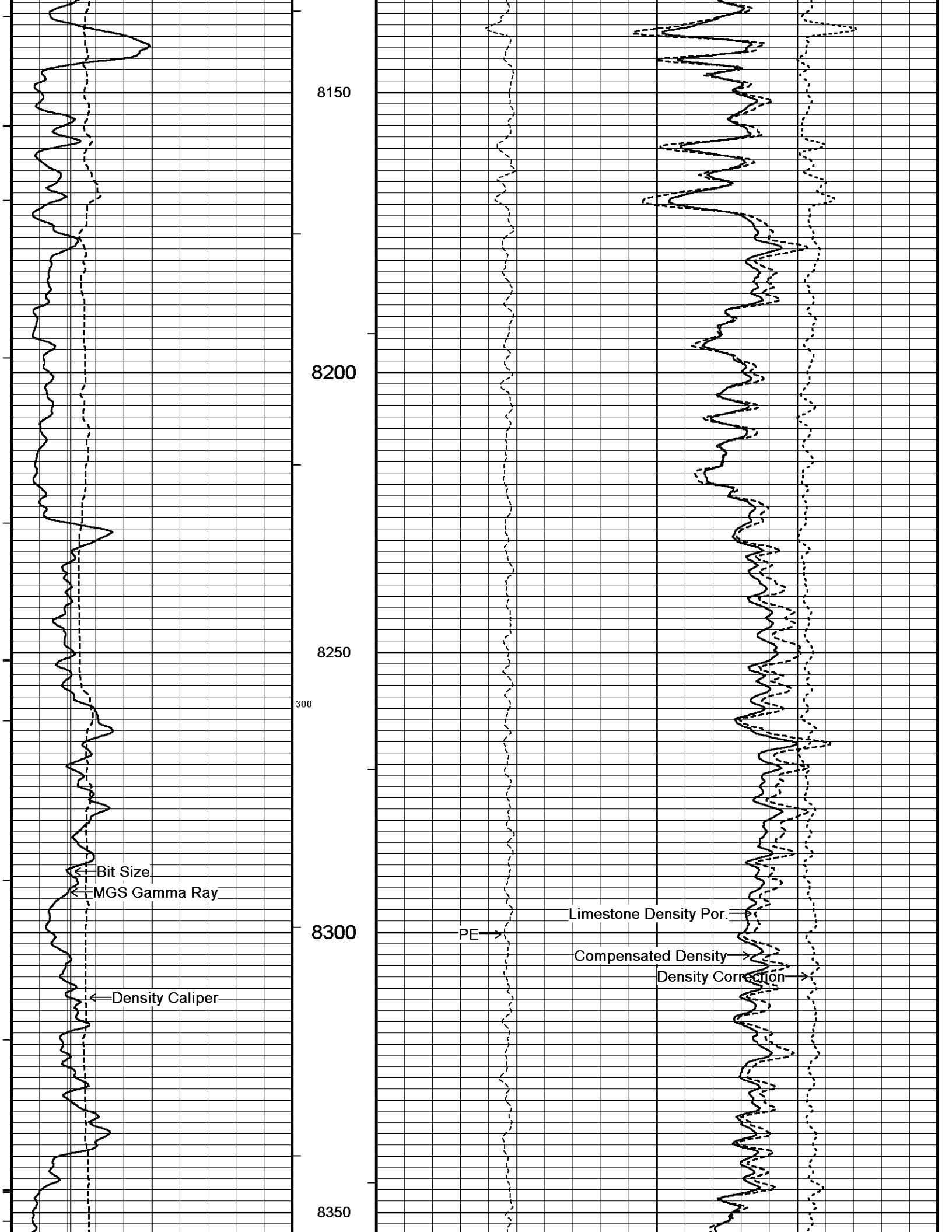


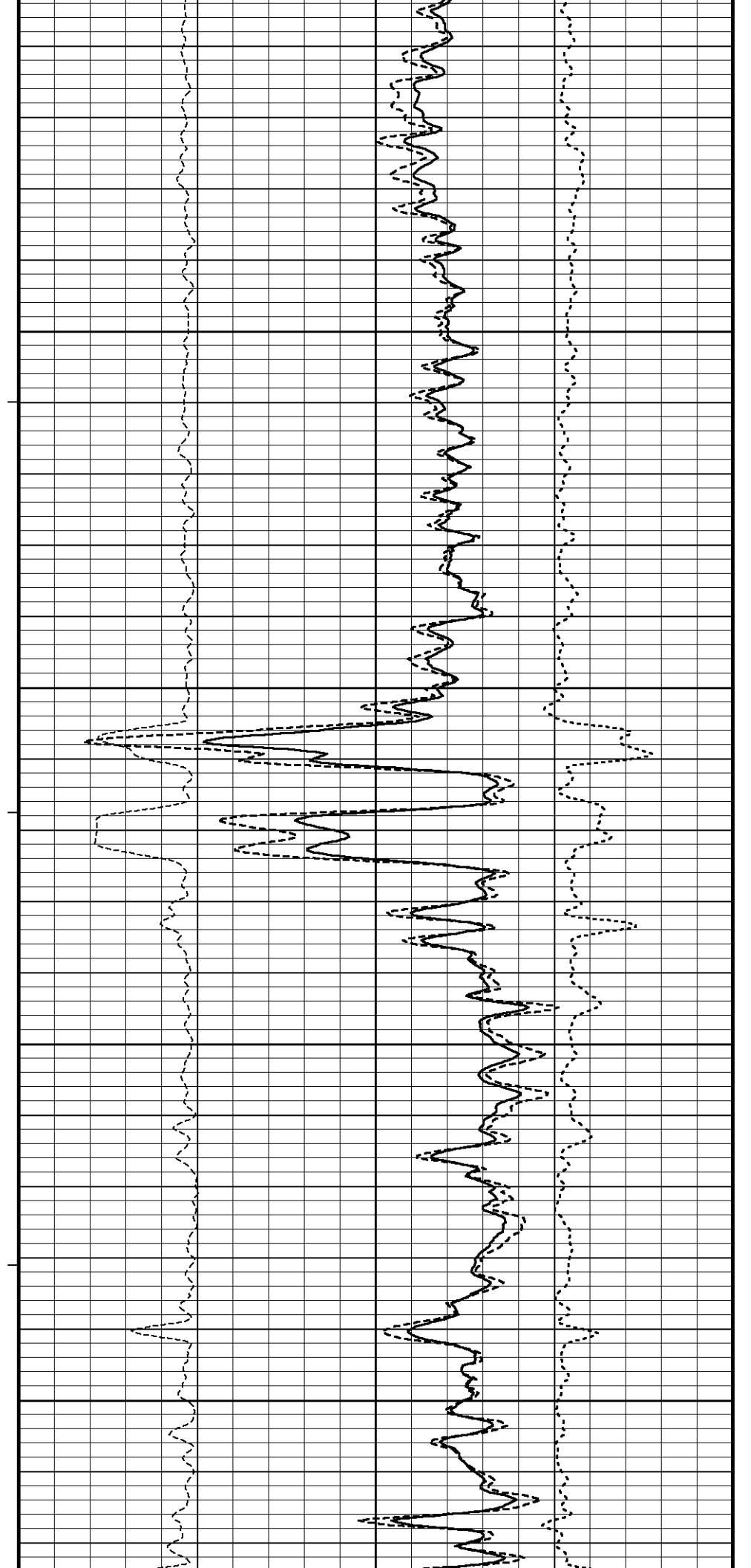
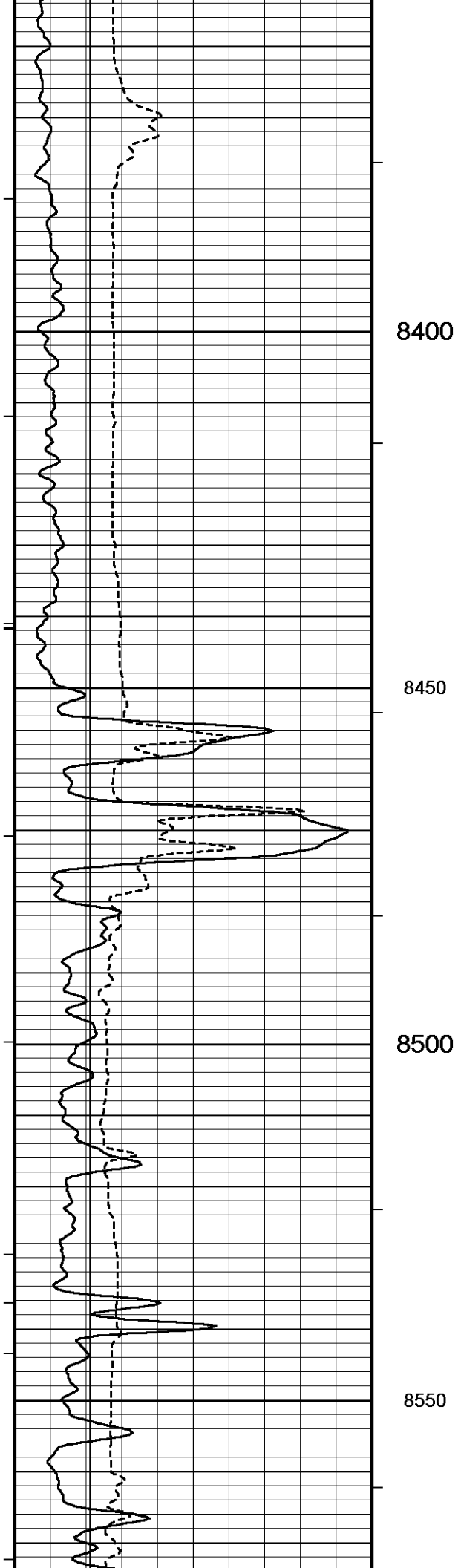


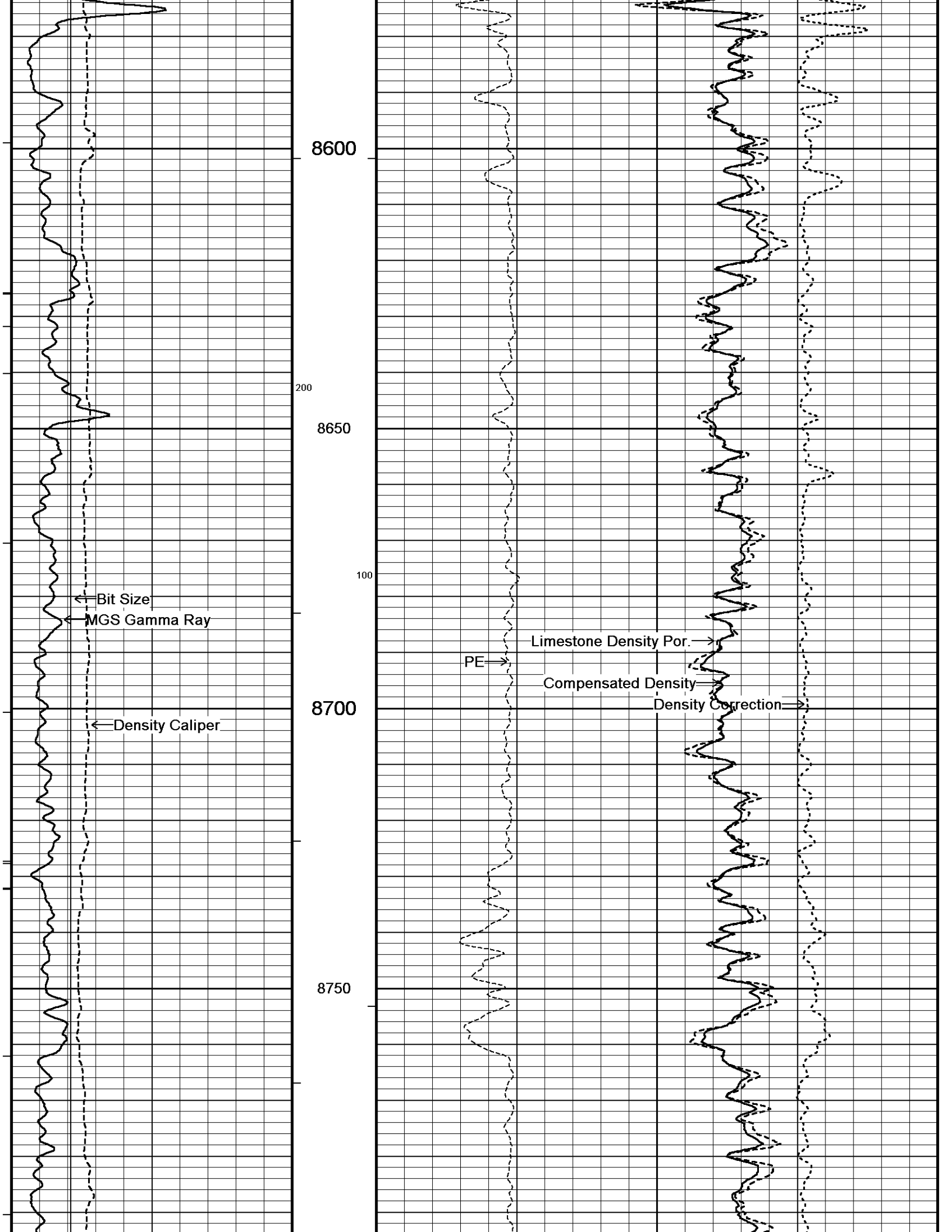


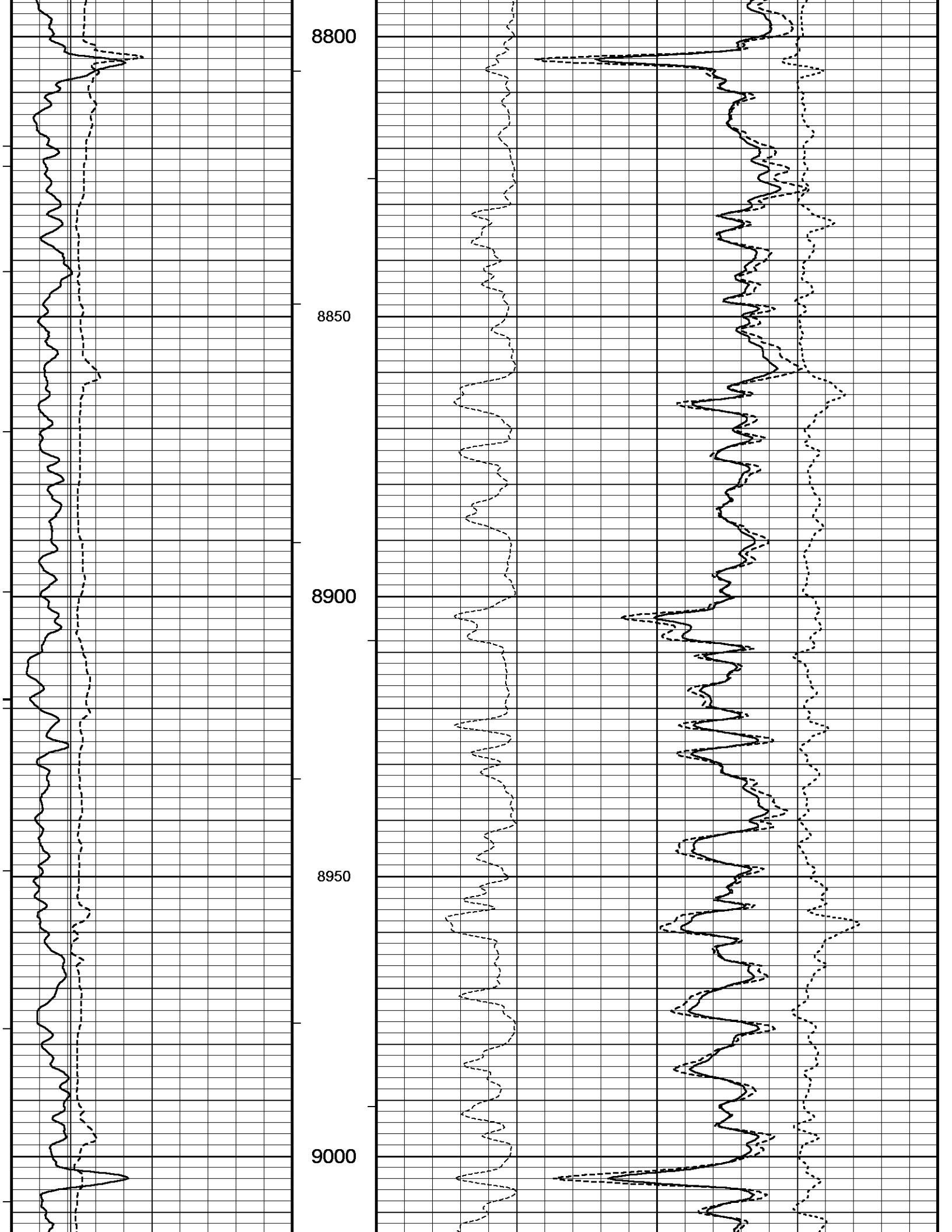




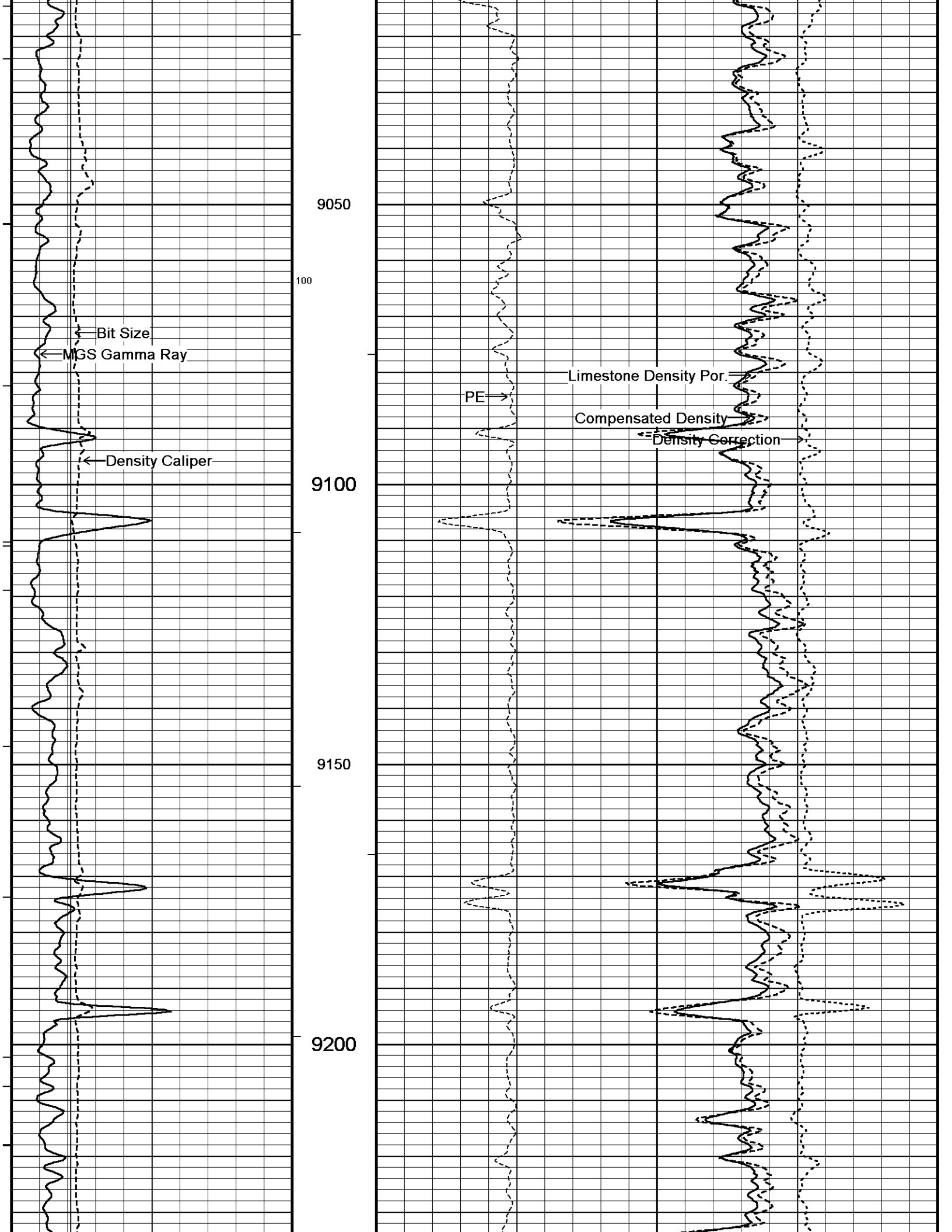


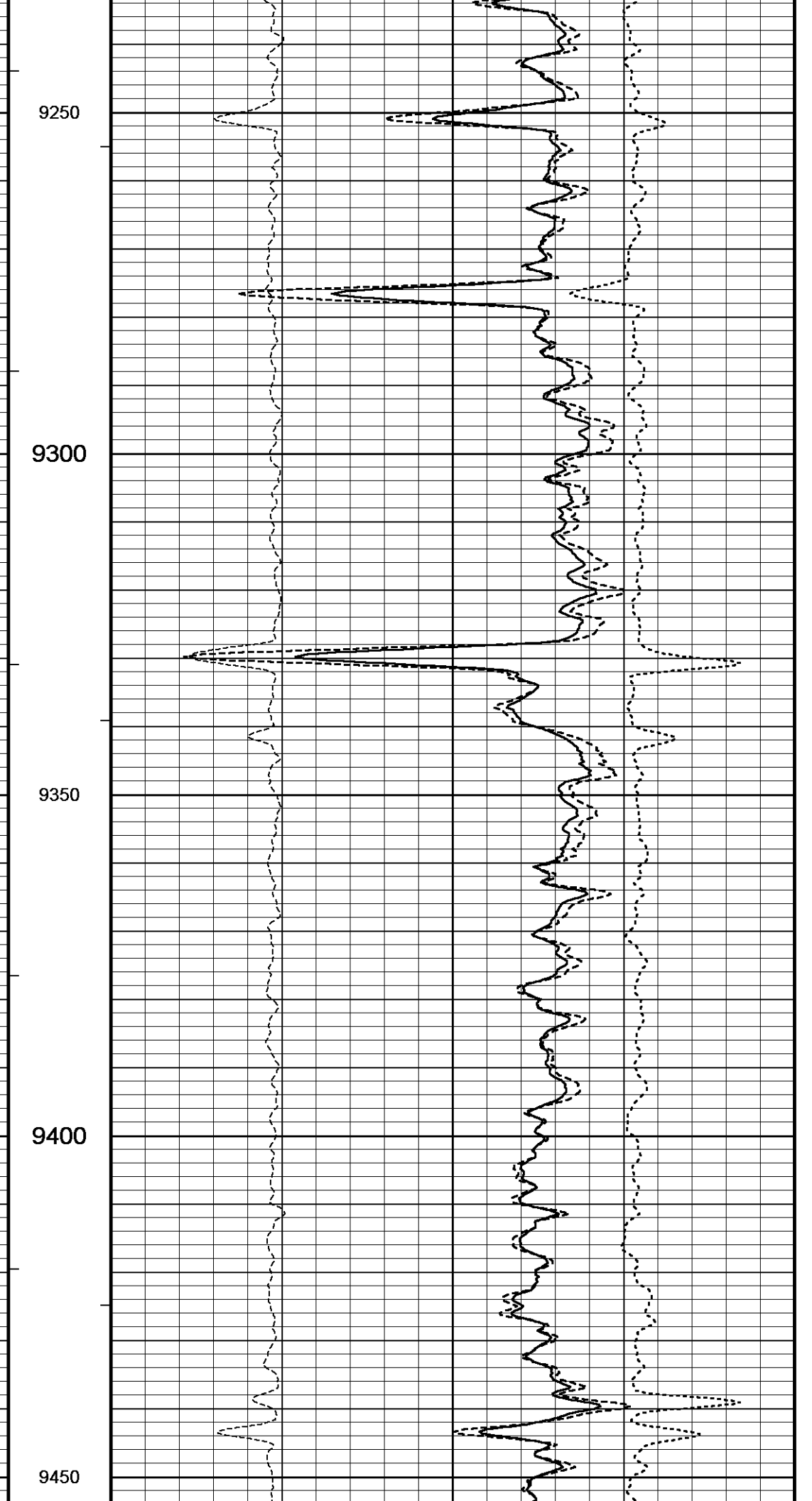
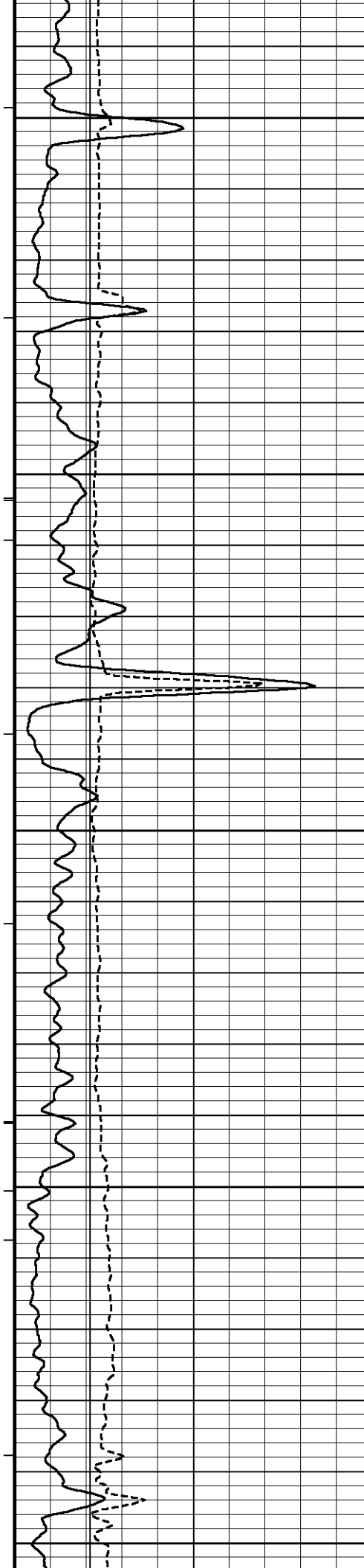


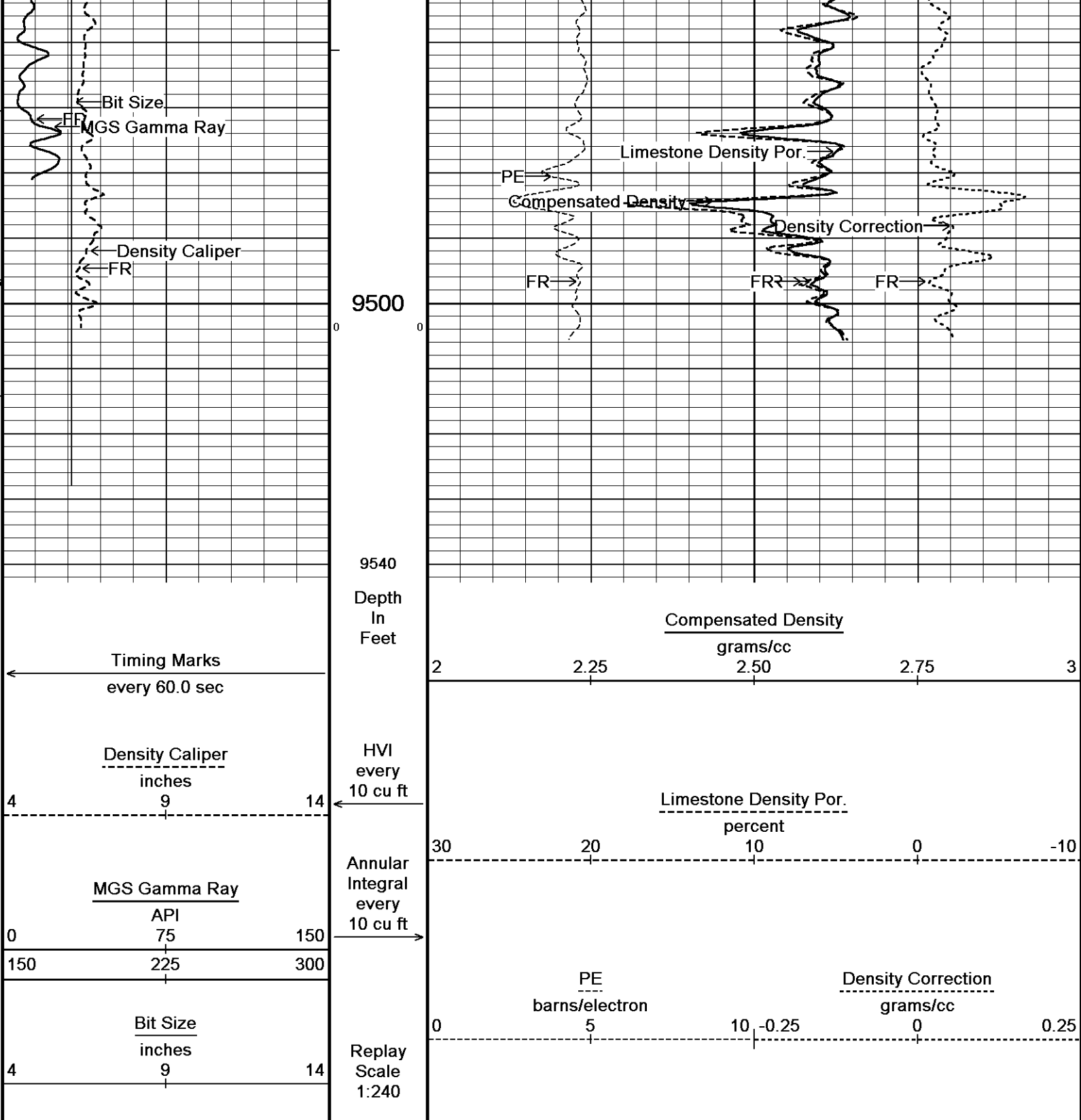












Depth Based Data - Maximum Sampling Increment 10.0cm  
 Plotted on 16-NOV-2011 17:42  
 Filename: C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta  
 Recorded on 16-NOV-2011 15:37  
 System Versions: Processed with 11.02.3186 Plotted with 11.02.3186

5 INCH BULK DENSITY LOG DSC

BEFORE SURVEY CALIBRATION  
 C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta

General Constants All 000  
 Last Edited on 07-NOV-2011,04:57

General Parameters		
Mud Resistivity	10001.000	ohm-metres
Mud Resistivity Temperature	68.000	degrees F

Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	None	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. Six Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

### Strain Gauge Constants SER-A 146

Last Edited on

Atmospheric Pressure	14.70	psi						
Serial Number	0							
Calibration Date	01-JAN-1998							
Base Check Date								
Dead Weight Serial Number	0							
Dead Weight Gravitational Correction	1.0							
Temperature	75.0	150.0	250.0	350.0	degrees F			
Pressure psia	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.
0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10000.0	0.000		0.000		0.000		0.000	

### Gamma Constants MGS-C.J 134

Last Edited on

Gamma Calibrator Number	000	
Mud Density	1.00	gm/cc
Caliper Source for Processing	Bit Size	
Tool Position	Centred	
Concentration of KCl	0.00	kppm

### High Resolution Temperature Constants MGS-C.J 134

Last Edited on

Pre-filter Length	11
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### Neutron Calibration MDN-A.B 165

Base Calibration on 26-APR-2011 12:35  
Field Check on 17-AUG-2011,16:54

Base Calibration					
		Measured		Calibrated (cps)	
	Near	Far	Near	Far	
	3111	97	3714	110	
Ratio	32.223		33.764		
Field Calibrator at Base					
			Calibrated (cps)		
			2113	3004	
Ratio	0.703				
Field Check					
			Calibrated (cps)		
			2084	3011	
Ratio	0.692				

### Neutron Constants MDN-A.B 165

Last Edited on 17-AUG-2011,22:48

Neutron Source Id	N1055	
Neutron Jig Number	N489	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.01	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu

Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	69.00	degrees F
Mud Salinity	0.00	kppm
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

Induction Calibration MAI-B.J 392

Base Calibration on 24-JUN-2011,15:35  
Field Check on 05-NOV-2011 00:17

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	17.1	467.1	9.3	966.2
2	6.1	375.5	7.6	821.4
3	3.2	259.2	5.2	566.0
4	2.2	129.4	2.6	279.2

Array Temperature 74.7 Deg F

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	0.0	0.0	10.8	3887.7
2	0.0	0.0	29.8	3589.7
3	0.0	0.0	28.5	3048.9
4	0.0	0.0	19.0	2140.2
Deep	0.0	0.0	16.9	2000.0
Medium	0.0	0.0	42.6	3972.8
Shallow	0.0	0.0	45.1	5304.1

Array Temperature 0.0 47.1 Deg F

Induction Constants MAI-B.J 392

Last Edited on 15-NOV-2011,17:12

Induction Model	RtAP-NC	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	6.0000	
Stand-off Fin Angle	60.00	degrees
Stand-off Fin Width	0.5000	inches
Borehole Corr. Rm Source	Temperature Corr	
Temp. for Rm Corr.	MGS External Temperature	
Squasher Start	0.0050	mhos/metre
Squasher Offset	N/A	mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	

Source for Rxo 0.00

High Resolution Temperature Calibration MAI-B.J 392

Field Calibration on 16-SEP-2011,06:02

	Measured	Calibrated(Deg F)
Lower	10.00	50.00
Upper	100.00	212.00

High Resolution Temperature Constants MAI-B.J 392

Last Edited on

Pre-filter Length 11

Caliper Calibration MPD-B 166

Base Calibration on 17-AUG-2011 17:15

Field Calibration on 03-OCT-2011,12:12

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	10560	4.02
2	20291	6.00
3	30079	8.03
4	40304	10.01
5	51120	12.01
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
6.00	6.00

Photo Density Calibration MPD-B 166

Base Calibration on 06-OCT-2011,22:10

Field Check on 05-NOV-2011 00:22

Density Calibration

Base Calibration

	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	53551	25143	60364	31945
Reference 2	22130	2523	25079	2547

Field Check at Base

1205.3 1391.7

Field Check

1206.2 1380.8

PE Calibration

Base Calibration

	WS	Measured		Calibrated
		WH	Ratio	Ratio
Background	224	1080		
Reference 1	23650	53361	0.448	0.399
Reference 2	6176	21992	0.285	0.273

Field Check at Base

223.9 1079.8

Field Check

221.5 1079.3

Density Constants MPD-B 166

Last Edited on 05-NOV-2011,04:17

Density Source Id	236
Nylon Calibrator Number	DNC-E-603
Aluminium Calibrator Number	DAC-D-509
Density Shoe Profile	4 inch
Caliper Source for Processing	Density Caliper
PE Correction to Density	Not Applied
Mud Density	1.23 gm/cc
Mud Density Z/A Multiplier	1.10
Mud Filtrate Density	1.00 gm/cc
Dry Hole Mud Filtrate Density	1.00 gm/cc
DNCT	0.00 gm/cc
CRCT	0.04 gm/cc
Density Z/A Correction	Advanced

Matrix Density (gm/cc) Depth (ft)

2.71 0.00

0.00 0.00

0.00  
0.00  
0.00  
0.00  
0.00  
0.00  
0.00

0.00  
0.00  
0.00  
0.00  
0.00  
0.00

## DOWNHOLE EQUIPMENT

C:\Minimus\Data\SDRG (ELLIS 1-19H)\MMS 166 RTAP.dta

Shuttle Mechanical Release (SMR A)  
SMR-A 148 LG: 8.53 ft WT: 77.2 lb OD: 2.52 in

Shuttle Electrical Release  
SER-A 146 LG: 6.90 ft WT: 50.7 lb OD: 2.24 in

MBS-G.A 200v Compact Battery Sub  
MBS-G.A 131 LG: 16.66 ft WT: 132.3 lb OD: 2.24 in

Compact Memory Sub E.B  
MMS-E.B 166 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.  
MTI-B.A 61 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma  
MGS-C.J 134 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

SKJ-E.A Compact Knuckle Joint  
SKJ-E.A 476 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor  
SHA-J.A 442 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub  
MIS-D.A 606 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron  
MDN-A.B 165 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper  
MPD-B 166 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub  
MIS-D.A 591 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor  
SHA-J.A 438 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint  
SKJ-E.B 436 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub  
MIS-E.B 577 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Induction  
MAI-B.J 392 LG: 12.52 ft WT: 48.5 lb OD: 2.24 in

**Total Length: 91.87 ft Weight: 698.9 lb**



50.40 ft GRGM - MGS Gamma Ray  
48.42 ft GSXT - MGS External Temperature

34.70 ft NPRL - Limestone Neutron Por.

27.46 ft AVOL - Annular Volume  
27.46 ft HVOL - Hole Volume  
27.46 ft CLDC - Density Caliper  
25.53 ft DPRL - Limestone Density Por.  
25.53 ft DEN - Compensated Density  
25.53 ft DCOR - Density Correction  
25.47 ft PDPE - PE

3.34 ft CTAF - Array Ind. Four Cond Ct  
3.34 ft R20F - Array Ind. Four Res 20  
3.34 ft R60F - Array Ind. Four Res 60  
3.34 ft R40F - Array Ind. Four Res 40  
3.34 ft R30F - Array Ind. Four Res 30  
3.34 ft R85F - Array Ind. Four Res 85  
3.34 ft RTAF - Array Ind. Four Res Rt  
Tool Zero (1.84ft from bottom)



Tool Zero (1.0 ft from bottom)  
 All measurements relative to tool zero.

COMPANY	SANDRIDGE EXPLORATION & PRODUCTION, LLC		
WELL	ELLIS 1-19H		
FIELD	WILDCAT		
PROVINCE/COUNTY	COMANCHE		
COUNTRY/STATE	U.S.A.\ KANSAS		

Elevation Kelly Bushing	2075.00	feet	First Reading	9497.00	feet
Elevation Drill Floor	2073.00	feet	Depth Driller	9574.00	feet
Elevation Ground Level	2055.00	feet	Depth Logger	9528.00	feet



**Weatherford**<sup>®</sup>

CML IMPULSE SHUTTLE  
 COMPACT PHOTO DENSITY  
 COMPENSATED DUAL NEUTRON LOG

